

# Road to quality assessment in operating room

## Abstract

The present study consisted of a field study, of qualitative nature, conducted at the public hospital in northern Portugal. Eighteen semi-structured interviews were conducted with health professionals in the operating activities of the hospital. All interviews were administered safeguarding ethical issues. Results indicate the need to introduce measures to improve quality in three major areas of the Donabedian model, excelling in interviews, especially the improvements in structure and some tools to process level. This study stimulates discussion around the importance of quality assessment in the operating room. We have sought to explore factors that contribute to quality, emphasizing the need for the creation and implementation of quality assessment tools, and highlighting the importance of partnerships in the provision of professional health care in the operating room, having a nuclear purpose, the continuous improvement of quality of health services available in the operating room, to the patient. The narratives of respondents touched up a group of influential elements as being fundamental to design an instrument for assessing quality in the operating room.

**Keywords:** quality assurance, health care, intraoperative, hospital units

Volume 3 Issue 3 - 2016

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**Received:** August 09, 2016 | **Published:** September 06, 2016

## Summary

The estudorealizado consisted of a qualitative field study carried out in a public hospital in northern Portugal, by performing eighteen semi-structured interviews with health professionals with activities in the operating room. Conducted intentionally, the study sought to safeguard the ethical and moral issues of the investigation. The same, procurouanálise on the importance of quality assessment in the operating theater, describes factors that contribute to the quality, stressing the need for the creation and implementation of quality assessment instruments and finally highlight the influence of teamwork in providing health care in the operating room with a nuclear purpose, improving the quality of health services available in the operating room, the user cirúrgico.Os results point to the need to introduce quality improvement measures in the three major areas of the Donabedian model, jutting in interviews, improvements to level of structure and some instruments the process level. The analysis of the narratives of respondents touched upon a group of influential elements in the quality that we consider fundamental to draw a quality assessment tool in the operating room.

## Introduction

The introduction of modern management techniques and the use of new tools for assessing the health services are aimed to bring efficiency, effectiveness and rigor in the management of resources, as well as to meet the expectations of patients. However this requires a higher responsibility from professional services of health. Furthermore, it has also been widely accepted that technological innovation combined with a technical view of professional practice is reflected in the health services. Although these technological advances means progress, they can also introduce injure and unwanted effects, with varying degrees of severity in health patients when they are not closely monitored. For this reason the quality of health services is currently a key concept and constitutes a technical and social imperative.<sup>1</sup> Aware of this problem, we enquire: "How can we assess quality in the operating room? Which aspects are needed to incorporate in order to assess the quality in the Operating Room (OR)?"

In this context, we conducted a study focusing on "The route to ensure quality in the OR" in order to achieve the following objectives:

- i. To identify factors that contribute to ensure the quality of health care in the OR,
- ii. To describe tools to control the quality of services in the OR,
- iii. To analyse the development of professional partnerships to provide care in the OR,
- iv. To design an instrument for assessing quality in OR,

With this study we intend to open a path for a possible Quality Management System implementation, thereby considering the role of quality as the engine of change for a lifelong learning and continuous improvement of health care in the OR.

The evolution of the concept of quality has undergone several changes over time. Therefore, how can quality are defined? Its definition is not easy; quality has to do with many factors: for example, with technical characteristics, design, durability, price, and etc.<sup>2</sup> This conceptualization becomes even more complex when applied to health. Has been<sup>3</sup> states that quality is often interpreted as excellence or as the very best. This is, the concept is explained with a connotation of perfection, thus allowing the interrogation, which point of view is expressed this perfection or excellence? It will be the professionals, the patients, the families, the administration, the organisms that fund.<sup>3</sup>

However, the concept of quality as consists of two elements, one objective and one subjective. The objectivity of quality is related to the physical components of the product and the subjectivity is related to customer satisfaction according to their perceptions and expectations. In the services sector, quality is restricted to customer satisfaction in a given situation; there is no separation between the time of manufacture and distribution.<sup>4</sup> However, must also determine the moment that this excellence is appreciated since in course of time, sometimes surprising changes of opinion can occur.<sup>3</sup> Nevertheless, that besides seeking customer satisfaction quality must also meet professional satisfaction and effectiveness of health care. Therefore,

he also refer that it is necessary to consider other objective factors which highlights, the acceptability, appropriateness of the diagnostic process and therapy, the behaviour of doctors and other professionals in front the patients, the prompt response to the application of treatment etc.<sup>4</sup>

The philosophy of continuous quality improvement was first applied to industry, with great results according to their advocates. Only then it was applied to health services which faced, indeed, some difficulty in assimilating and using certain terms as supplier, customer and product. However, Mezomo<sup>5</sup> views the health services as, organizations that use “resources”, running “processes” and that aims to “outcomes”, arguing, therefore, the application of principles of management philosophy of continuous quality improvement, contending that the objectives of this philosophy in health services consist of:

- i. Achieving levels of excellence in clinical and administrative procedures, as well as in meeting the needs of patients,
- ii. Optimizing the use of resources in terms of material, human, financial and technological resources,
- iii. Maximizing the benefits and reducing the risk of patients,
- iv. Reducing costs and eliminating waste,
- v. Providing maximum satisfaction to all internal and external customers.

However, it must be noted that the fundamental objectives of quality in health care are respect for the human person, the equitable distribution of health care, the peace that comes from the equity and appreciation of the ethical dimension of the organization and professional work. Quality can then be understood as a set of properties of a service (product) that make it suitable to the mission of an organization (company) designed to meet the needs and legitimate expectations of its customers.<sup>5</sup>

Despite the contribution of several authors, the most widely used measurement model for health care, is the one by Donabedian.<sup>6</sup> He considered the grand master of quality in health.<sup>5</sup> developed a model of quality assessment that has become the standard in the field of health services.<sup>7</sup> This model was first introduced in 1966,<sup>6</sup> and consists in evaluating the quality of health, based on three essential components: structure, process and outcomes.

The OR has always been associated with the history of surgery, the discoveries of microbial infection and the concepts of spreading infection, highlighting the importance of controlling the infection and isolating the surgical patient. On the other hand the technological development of recent years has revolutionized the surgical and anesthetic techniques, modifying diagnoses, treatments and care in the OR. The organization itself and the inner workings of an OR, have been the subject of several studies whose results have undoubtedly influenced the search for architectural solutions for a better working efficiency and greater interaction between the organization and architecture of the OR.<sup>8</sup> OR is now described as an autonomous organic and functional unit, consisting of human, technical and materials geared to provide anesthetic care/surgical specialist, to the patient totally or partially dependent in order to save, treat and improve your quality of life.<sup>8</sup>

Surgical care has been an essential component of health care around the world for more than a century, and given the increase of neoplastic diseases, traumatic injuries, cardiovascular diseases, among others, as well as the longevity of the population, the impact of surgical interventions in the health care system will grow significantly.<sup>9</sup> According to the WHO,<sup>10</sup> studies conducted in industrialized countries suggest that the rate of major complications after surgery are reported in the order of 3-22% of inpatient surgical procedures and the mortality rate occurs in about 0.4 to 0.8% of the cases. In addition, adverse events that affect all admitted patients were estimated at 3-16% and more than half of these events are recognized as being preventable and the same proportion occurred during the surgical care.<sup>10</sup> In this sense, preventable surgical complications represent a large proportion of preventable deaths and surgical damage to the global level. Therefore, it is essential to promote the implementation of projects of education and public health interventions to improve surgical safety and quality of care.<sup>9</sup>

Studies show that approximately 10% of patients admitted to hospital suffer some kind of damage. Although the majority of these events are low severity, some lead to severe injury and even death and a significant percentage of these adverse events are associated with surgery.<sup>11</sup> In addition, the OR is most common site for adverse events within hospitals, as it represents a complex environment where the expertise, technology and the resources require better coordination and speed.<sup>12</sup> Confronted with the worldwide evidence of damage in public health due to poor patient safety, the WHO approved in 2002 a resolution to encourage countries to increase the safety of health care and to implement monitoring systems. In October 2004, the “*World Alliance for Patient Safety*” was created in order to improve the overall safety of the patient. In 2009, the program “*Safe Surgery Saves Lives*” was presented by this organization, aiming to improve safety of surgical care and reduce the number of deaths and complications in surgery. A checklist was also developed in order to assist professionals who are concerned with the promotion of security and improving the quality of surgical services. This checklist was intended to strengthen security practices of in-hospital care benefits and ensure the steps of preoperative, inoperative and postoperative.<sup>10</sup>

## Methodology

The study regarding the state of the art in quality assessment in health services helped us to better understand the phenomenon in all its breadth, therefore allowing us to define a set of hypotheses that have not been answered yet:

- i. What factors converge to quality in the OR?
- ii. What tools are needed to evaluate quality in the OR?
- iii. What changes are needed to build quality in the OR?

Due to the nature of this research study, we have opted by a qualitative design, given our interest in deeply knowing the phenomenon of quality in OR. In this study, the sample selection was intentional, based on the knowledge that the interviewer held on the population and its elements, so the selection was based on participants’ ability to influence in some way the quality of the OR, as well as the experience and knowledge about the activities of the OR and the quality of health services. In this sense the interviews were conducted with the following professionals from a hospital in Northern Portugal: Members of the Board, as they have the ability to influence the functioning of the OR and the performance of health

professionals; Doctors and nurses serving in the OR; Directors of the medical specialties involved in the activities of the OR, by the performance of their duties for management their services; Head Nurse of the OR due to his role in managing the service itself and the nursing staff of the OR. Thus, given the objective of the data collection method being the deepening and verification of areas of a familiar theme, the type of instrument selected was the semi-structured interview. The interviews were conducted according to the interview guide prepared in advance for the period of two months from May to July, 2010. The interviews had an average duration of approximately forty-five minutes. We then proceeded to the encoding, organizing frameworks, which were defined categories, subcategories and registration units, which ordered the information. The answers made by respondents were assessed using content analysis according to the principles outlined by Bardin.<sup>13</sup>

## Results

The results that emerge from the narratives of the participants translate into a set of attributes that could be termed as defined by Donabedian,<sup>14</sup> “*components of quality in the OR*” These attributes appear aggregated as described in the literature, combining elements of a triad consisting of structure, process and outcome. Mezomo<sup>5</sup> adds that this triad of elements is not only made up of autonomous parts and separated from each other, but, for intimately linked and interrelated, maintaining a certain line of causation and effect. Once when considering each of these attributes in isolation causes problems and shortcomings, then the best strategy for quality assessment is on the selection of set indicators representing the three approaches.<sup>14</sup> Furthermore, from the analysis of the participants discourse, we denote a great approach to the current model of Donabedian,<sup>14</sup> after this presentation, we follow the three main areas of the model, structure, process and outcome, articulating with the specific responses of the speeches of the participants.

### Structure

The structure could be the main determinant of quality of care, but as Cardoso<sup>15</sup> stated the existence of good structural conditions alone does not guarantee a high level of quality care or services, although it may be considered as a necessary condition. Hence, the variations in the structure of the system, unless they are large, they may not be significant to quality. The attributes associated with the structure were evident during the interviews, emerging from this theme the following categories: facilities, equipment, financial resources, human resources and organizational resources.

Bilbao,<sup>8</sup> points that despite all the progress and change, many OR are still inadequate, and therefore an urgent reassessment and monitoring of existing installations is needed. “This fact is validated by the participants: “*One thing important to work is the space*” E14 Conversely, in the narratives of the participants the most infrastructures voiced were the induction room, surgical waiting room and the clean and dirty channels, being this last considered a key factor.

The concern about the safety of users and professionals during surgical interventions are essential aspects of the structure of an OR, and this concern was made clear throughout the interviews: “The block has to be understood as a sanctuary ... and people have to learn to respect the sanctuary OR.” E8 At this level there were also the environmental conditions, referred as a concern for safety but also for

the health of the worker. The work environment may include physical, psychological, social and environmental conditions such as lighting, heat, hygiene, noise and pollution.<sup>16</sup>

In the category of equipment, the interviewees pointed their specificity in the OR, due to the technical and scientific developments of recent years. In this context the interviewees sometimes questioned the need to acquire new equipment, “One thing is to ask for new appliances to good judgement and measure, another thing is to ask for something just for the sake of asking, which will then not be used or that does not fit in with what we already have, so it’s a brutal waste of money. I mean, this cannot be done.” E13 The maintenance of such equipment should be included in the normal functioning of the institution, hence the reference in interviews to maintenance measures. These measures are particularly important for the safety of users as reported in 2001 in the French National Union of Associations of Operating Room Nurses State Diplomadas.<sup>17</sup>

Still the OR requires high financial resources to maintain, and this was made evident by some concerns expressed by the interviewees particularly with regard to investment, the need to guard against waste and impact on quality. The importance accorded to the OR is widespread in the famous phrase “*Hospital within the Hospital*” coined by Cphims KRF et al.<sup>18</sup> Therefore, the frequent reference to the large investment that is associated with the operation of the OR is not surprising, “A great deal of money in terms of equipment and clinical consumables goes all to the OR.” E3 Despite the need for large amounts of investment previously mentioned the current economic recession did not spare hospital organizations, and there is even greater need to guard against waste, “There must be a sensible use to avoid squandering.” E2

However quality is not perceived as being completely dominated by the available financial resources, as referred by this element: “Financial resources may not be the most important factor in the OR, because sometimes it can have a heavy budget and still no quality, so one thing does not involve the other” E14

In this investigation we detected the importance given to human resource management in the attributes associated with the structure; this value is visible in the discourse of participants whose concerns within the issues of skills, ratios and specificity of professional groups. At this level, Pinto et al.<sup>16</sup> emphasize that the organization should identify the minimum skills required, the training needs of human resources to obtain these skills and define the rules of selection and recruitment of human resources. In the interviews the crucial need for specific skills of professionals in the OR, was highlighted, “The OR is a very demanding service, in which we rely heavily on each other, and when people do not have a good performance the service suffers.” E17

The importance of the ratios of the activity of the human structure of the OR was further underscored. The appropriate ratios include doctors, nurses and assistants, distributed as follows: “All operations should have a surgeon and at minimum an assistant. In differentiate surgeries there should be two assistants” E4 and “There is a team that has to be ensured, an anesthesiologist per room, a surgeon and at least one assistant, an instrumentalist and a circulating nurse and other for anesthesia.” E12

One of the constraints verbalized by interviewees associated with the management of professionals is the specificity of some groups. This concern is described primarily on the functional characteristic



of the doctors, “The organization of the medical staff does not always work well. Doctors also have a system of work a little bit different from the nurses, because they have other areas of activity.” E4

Finally and still referring to the organizational resources as important attributes of the structure, the activity pre-and post-operative as a subcategory of this item, is part of the nursing consultation, a preoperative visit and consultation of anesthesia, described as being essential to the User. Mezomo<sup>5</sup> reinforces that, change is not something the administration decides or decrees and that people do. The management policies are crucial, as referred to in this interview: “If top management is not involved it does not help, the top management must be involved” E3

Research, education and training are also subcategories grouped under the category of organizational resources, but research is addressed by the interviewees as something difficult to implement, although they highlighted the importance of training and education.

### Process

The detailed features of the process of health care can provide valid information about quality. However, seem to be the detailed features of the process of health care that can provide valid information about quality. In a way, the statement “*Quality of care*” could be taken to mean “*quality of the processes of care*”<sup>5</sup>The attributes associated with the process that highlights the narratives have been divided in five categories: teamwork, communication, human potential, quality strategies and the role of user and family. Teamwork is an important attribute of the process, and interviewees underlined the importance of interpersonal relations, leadership, multidisciplinary and networking functions. As Sale<sup>19</sup> refers, each professional has a role to play in providing high quality care, but as we work in multidisciplinary teams, we should also develop approaches to quality assurance as a team. High quality care cannot be maintained if members of the same team are working at different levels. This statement is supported by the following quote from one interview: “There are certain things that are important in assessing the quality of the surgical team, including prior knowledge of the elements, the act of working together ... each one understands a little the way that everyone work ... the characteristics of your partner and how to act...” E2

If for the one hand, teamwork is emphasized and emerges as a subcategory, the importance of communication was also mention, as interviewee also notes that: “One of the key processes of quality is the process of internal and external communication. Consequently for the quality process, this information must be suitable for professional and user ... this information is essential.” E2

Though the importance of communication was still highlighted through information documented by register though it was still highlighted the importance of communication through information documented, “The registration information must be recorded throughout the doctor’s part, or from the part of nursing, I think it has the information to be transmitted not only doctor to doctor but also of from doctor to the nurse, this is fundamental.” E16

Managers concern about the human potential organization is becoming an issue with increasing visibility. Therefore, the formation of teams should identify skills and abilities relevant for staff selection. It is assumed that the features should be used to promote more individual and team performance.<sup>16</sup> The importance attributed these attributes is visible in the interviews where in addition to the “Know-

how” of each worker, the importance of emotional control is also stressed, “It is a service where the emotional part is very important ... to calm, tolerant, because it is a place that is very closed to the outside and emotions are always in contention, sometimes we have to wait until the best time come to say something.” E4.

The implementation of a quality program involves a change of mind and attitude, but also the use of appropriate strategies. During the interviews described important strategies for the quality of processes were described, including the use of a quality manual, protocols, checklists non-compliance forms, the relevance of counting and the use of tampons, as well as the use of quality circles.

It is often difficult to link the care background and the subsequent results. However, these difficulties are addressed, or at least mitigated, if the results included the contributions of all inputs to the final result, including contributions from clients and their families.<sup>14</sup> At this level, one can say what is on the agenda to strengthen the involvement of people in their health processes. The organizations focus only on themselves and the professional groups are endangered.<sup>20</sup> This aspect, though little discussed, is mentioned by some interviewees, “It is time to realize that the user has not only rights, but also duties, duties in preparation for surgery, duties in their recovery and rehabilitation after surgery, as it has duties in society.” E1 As for the importance of family, it is devalued, “I think the family can only make indirect contributions to the quality of the OR” E2.

### Outcomes

Despite being described as the last component of quality assessment, outcome is the first step in a series of activities, along which you can make adjustments, including even conducting the examination of the process that led to undesired results.<sup>20</sup> Indeed, participating in the current controversy concerning the methodology used in evaluating the results, and bearing in mind that what matters most is the effect of treatment on the health of the client, Donabedian<sup>14</sup> reminds us that the results cannot be defined and attributable to care. Other variables exist, hence the need to include all the inputs to assess the final outcome.

To measure the quality of care, one should select the most appropriate tools: “We created it, we made it and in the end we had health gains, we got results.” E5 In addition to obtaining health gains, increasing the level of health in different stages of life and reducing the burden of disease, other instruments were also described. At this level, most interviewees stressed the importance of assessing user satisfaction, “Satisfaction is the main point in providing health services ... not just the technical part, but also care and attention.” E14 Measurement of surgical complications also allows further the knowledge of surgical results with this stratification; the postoperative complications may be associated with surgery. Although underappreciated by the interviews, the WHO<sup>6</sup> safeguards the need for monitoring of complications. One interviewee acknowledges “I think the post-operative complications which are directly related to the surgery should be evaluated ... maybe 24hours or 48hours where there is a direct relationship with the surgery and you need to see how this complication emerged, which is that the OR, or the attitude and the work of professionals that contributed to this complication, may-be the reason linked to the patient’s posture, the surgical procedure, the anesthesia, and other things” E2

In assessing the results, it is important to establish the strategies to evaluate them, as well as tools to quantify and compare the results

continuously. These issues are addressed by the interviewees over the monitoring production of indicators and conducting internal and external audits subcategories, although the latter with little relief, “and there should also be professional technical and procedural monitoring process” E2.

The indispensability of the production of indicators and their use is reinforced in the discourse of the interviewees, “The development of indicators and the information they give us are important...” E17 In terms of the evaluation of the processes, some aspects described concerned the assessment of the average delay of processes and profitability, “Then we could evaluate some things that had to do with the production ... I think it would be interesting ... at the level of production it would be interesting. We could assess the occupancy of the rooms ... there are days when this is monitored and other days when it do not. ... And also the investment that is made and reflected in improved care....” E4 According Mezomo,<sup>5</sup> the great result of proper management of human resources is the improvement of their own personal quality, which in turn is a prerequisite for the success of the organization. At this level, the evaluation of the performance has a relevant impact in the discourse of interviewees. “The evaluation of performance. I think it is completely inappropriate... it’s ridiculous.” E3.

## Discussion

The items discussed above seem to provide an answer to our concerns, “What are the aspects that need to be assessed in what concerns quality in the OR?” Indeed, we have found support for the suggestion by Mezomo<sup>5</sup> that Donabedian’s triad of elements is not composed of autonomous parts, dissociated from each other, but rather intimately linked and interrelated, maintaining a certain line of causality and effect. Since the methodologies of quality that we use today are like a river system: the river that flows from its springs and tributaries that have helped to grow along the route and the conditions in which it spreads.<sup>20</sup> Continuing the questions guiding our study and while some of these items have already been discussed, we answer the question “What tools are needed to evaluate the quality in the OR?” Measuring the results is only the first step in a series of activities. To make corrections, we have to walk back to the process that led to undesirable results, hence may have to go to the aspects of structure that have been responsible for or contributed to them.<sup>20</sup> However, these inter-relationships between structure, process and outcome, join the principles of the triad proposed by Donabedian. Finally, we tried to uncover the necessary strategies to define a path towards quality in the OR. During the interviews several strategies were mentioned. Among them was the necessity of a quality manual. The formalization of the quality system in a manual should be a great collective exercise of rethinking the organization. The importance of using protocols is also referred to in the following quote: “Ideally would be to have written procedures and processes known to all... this would be useful because it allows to know what they are and be willing to correct them and improve them... and integrate any new element that comes... The procedures are made for both routine and for the most exceptional emergencies or interventions which also require an appropriate response.” E2 According to Sale<sup>19</sup> the use of protocols has advantages, including greater understanding by all team members of what each

professional does; knowledge of the expected results, the reduction of duplication and contradiction care. The use of the checklist is now imposed on all OR of the Portuguese National Health System. This interviewee says, “I think for example, important the checklist recommended by WHO, the situations are easy to implement and has some consequences..., improve the quality of records and reduce misunderstandings in some the procedures on the OR.” E8.

Using the form of non-conformities appears as an element capable of minimizing error. According to this interviewee, “Are willing to register fill the non-conformities, attributing the reason for non-compliance of the solution they recommend to resolve non-compliance, then the pilot, this monitoring of the functioning of this team in the resolution of non-compliance” E2.

The relevance score compresses appears as an important factor given the nurse, as corroborated by the WHO<sup>10</sup>. The retention of instruments, bandages and needles is unusual, but a persistent error, potentially calamitous. The instrumentalist nurse, or the circulating nurse, must verbally confirm the integrity of the final count of swabs and needles. Finally, the use of quality circles, which is in use in the OR under study, is reported by some respondents as an asset, “Nurses are already spread across areas and even surgeons are already distributed, a lot of areas to which each one is dedicated... and note that the result is much better, because in fact when a person is dedicated in an area they will be more involved in terms of performance, run much better, because they have more training and more skills.” E4 The analysis of the interviews highlights the exacerbation of the individual component to the detriment of the component group, in terms of quality, “I do not do research. What I do is more to control what “I” do...” E14 Throughout all the interviews the need for professional training and involvement of a policy of continuous quality improvement was apparent.

## Final remarks

The concept of quality has come a long way until the present day. Quality in health services is an increasing responsibility, and no longer an option. These aspects reflect the centrality of our research, including finding a path of its applicability to the OR. Quality requires reflection on practice and there is indisputable relevance of this approach to improving patient care. The OR is a unit of complex care, surrounded by some mysticism; the quality must be a requirement for all those involved in health care. The OR is a unit of complex care, surrounded by some mysticism, where as in other health settings, the quality appears as a requirement for all those involved in health care; being seen as an essential attribute.

The results that emerge from the narratives of the participants translate into a set of attributes called quality components in the OR and combine Donabedian’s a triad of elements - structure, process and outcome. It should be noted that this study was intended to identify aspects that would be needed to assess the quality in an OR through a field study. This study sought to provide relevant information to the development of a quality policy in the OR, thus contributing to the improvement of care in health setting. We believe that our methodology of choice-field research - has allowed us to reach the health professionals in their natural context (Table 1-3) (Figure 1).

**Table 1** Synthesis of the structure of the division into categories and subcategories

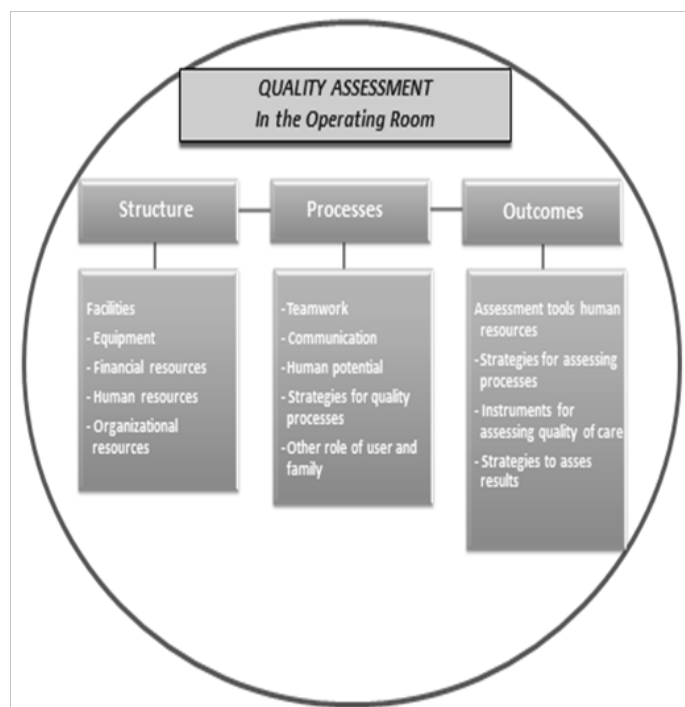
<b>Structure</b>				
<b>Facilities</b>	<b>Equipment</b>	<b>Financial resources</b>	<b>Human resources</b>	<b>Organizational resources</b>
Dimensions	Top equipment in the OR ... a fact necessary or dispensable	Financial resources and impact on quality	Acquisition of specific skills	Activity pre-operative and post-operative
Security	Reliability and maintenance of equipment	Avoid waste	Appropriate ratios	Management policies
Ideal physical infrastructure	Specificity of the equipment in the OR	Investments in the OR	Specificities of some professional groups	Investigation
Desktop				Education and training

**Table 2** Summary of the process division into categories and subcategories

<b>Process</b>				
<b>Teamwork</b>	<b>Communication</b>	<b>Human potential</b>	<b>Strategies for quality processes</b>	<b>The role of user and family</b>
Interpersonal relations	Internal communication	Know-how	The quality manual as a tool for quality assurance	Variables associated with the user
Leadership	External communication	Emotional Intelligence	The importance of protocols	The contribution of family
Multidisciplinary and joint function			The "checklist" as a strategy for quality	
			Using the form of non-conformities	
			The relevance score compresses	
			Quality circles	

**Table 3** Summary of the division of outcomes into categories and subcategories

<b>Outcomes</b>			
<b>Instruments for assessing quality of care</b>	<b>Instruments for assessing quality of care</b>	<b>Strategies for assessing processes</b>	<b>Assessment tools human resources</b>
Health gains	Monitoring	Average delay	
Evaluation of user satisfaction and family	Production indicators	Return on processes	Performance Evaluation
Number of complications	Internal and external audits		



**Figure 1** Summary of data obtained in interviews in the categories of structure, process and outcomes.

## Acknowledgements

None.

## Conflict of interest

The author declares no conflict of interest.

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