

INSTRUMENTS TO EVALUATE QUALITY AND SAFETY IN THE SURGICAL CENTER – AN INTEGRATIVE REVIEW

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ABSTRACT: This study aimed to identify the instruments in existence for evaluating quality in the surgical center. An integrative review was undertaken of the literature in the period 2010 - 2015 through the use of specific search engines. Following analysis in accordance with the inclusion criteria established, 13 articles were selected. The analysis of the scientific evidence obtained made it possible to organize the results in three thematic areas: evaluation of the structure, evaluation of the process, and evaluation of the result. The instruments analyzed are more frequent in the ambit of the process and associated with the patient safety culture. The results reveal the need for further development at this level specifically through the construction and validation of instruments which are more broad-ranging, integrating the different components of the assessment of quality.

DESCRIPTORS: Surgical center; Instruments; Quality of health care.

INSTRUMENTOS PARA AVALIAR A QUALIDADE E SEGURANÇA NO BLOCO OPERATÓRIO - REVISÃO INTEGRATIVA

RESUMO: Este estudo teve como objectivo identificar os instrumentos existentes para avaliar a qualidade no bloco operatório. Realizou-se uma revisão integrativa da literatura no período entre 2010 e 2015 com o recurso a motores de busca específicos. Após a análise segundo os critérios de inclusão estabelecidos, foram seleccionados 13 artigos. A análise da evidência científica obtida permitiu organizar os resultados em três áreas temáticas: avaliação da estrutura, avaliação do processo e avaliação do resultado. Os instrumentos analisados são mais frequentes no âmbito do processo e associados à cultura de segurança do doente. Os resultados revelam a necessidade de maior desenvolvimento a este nível, nomeadamente através da construção e validação de instrumentos mais abrangentes, integrando as diferentes componentes da avaliação da qualidade.

DESCRIPTORIOS: Bloco operatório; Instrumentos; Qualidade nos cuidados.

INSTRUMENTOS PARA EVALUAR LA CUALIDAD Y SEGURIDAD DEL BLOQUE OPERATORIO - REVISIÓN INTEGRATIVA

RESUMEN: El estudio tuvo como finalidad identificar los instrumentos disponibles para evaluar la cualidad en el bloque operatorio. Se realizó una revisión integrativa de la literatura en el periodo entre 2010 y 2015 con el recurso de los motores de búsqueda específicos. Después del análisis de acuerdo con criterios de inclusión establecidos, fueron seleccionados 13 artículos. El análisis de la evidencia científica obtenida posibilitó organizar los resultados en tres áreas temáticas: evaluación de la estructura, evaluación del proceso y evaluación del resultado. Los instrumentos analizados son más frecuentes en el ámbito del proceso y asociados a la cultura de seguridad del enfermo. Los resultados apuntan la necesidad de más desarrollo en este nivel, específicamente por medio de la construcción y validación de instrumentos de acción más amplia, integrando los distintos componentes de evaluación de la cualidad.

DESCRIPTORIOS: Bloque operatorio; Instrumentos; Cualidad los cuidados.

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● INTRODUCTION

The surgical center is an organic-functional unit made up of an integrated set of human, physical and technical means, whose purpose is the provision of surgical treatment or the undertaking of tests which require a higher level of quality⁽¹⁾. The surgical center is one of the most complex work contexts in the area of health. In these units, the teams of health professionals are highly trained and qualified, undertaking their activity in complementarity and interacting with advanced technology, in high-risk situations, with the responsibility to meet the needs of the surgical patient⁽²⁾.

The services provided in the surgical center to the surgical patient require an appropriate organization of the health professionals and equipment, supported by broad-reaching and documented procedures which reflect high-quality practice⁽³⁾. The characteristics of the perioperative environments place the health team at risk of making errors and at risk of the occurrence of adverse events, with the highest number of errors occurring as a result of the care and treatment provided in the surgical center⁽²⁾.

The surgical center has high prevalence of errors and accidents, examples of which are wrong procedure, on the wrong patient, the wrong organ, on the wrong side, inadvertent retention of foreign bodies, and surgical complications such as infection and venous thromboembolism, as a result of which the safety of the patients in the surgical center is currently a major concern which has recently received great attention from the World Health Organization (WHO), which has taken this as a priority⁽⁴⁾.

It is estimated that adverse events affect 3 – 16% of all inpatients, with more than half of these events being avoidable. In spite of the evolution of knowledge related to surgical safety, at least half of the events occur during surgery. Assuming a rate of 3% of adverse perioperative events and a global mortality rate of 0.5%, nearly 7 million surgical patients will experience significant complications each year, 1 million of whom will die during or immediately after the operation⁽⁵⁾.

In this regard, it is a matter of priority to implement measures which ensure the quality of this care and the safety of the patient herself. Due to the complexity of its activity and its interdisciplinary nature, the surgical center constitutes a vast field of activity which needs the implementation of measures in order to ensure total quality⁽⁶⁾, including quality criteria which are transversal to the entire organization and specific to the surgical center⁽²⁾. The introduction of modern techniques and management models, and having resource to new instruments and methods for evaluating the quality of the health services with the objective of producing efficiency, efficacy and rigor in the management of the resources, as well as to meet the expectations of the service users, requires additional responsibilities specifically for the nurses.

Aware of these responsibilities, and through using an integrative review of the literature, we intend to identify the instruments used for assessing quality in the surgical center to be found in the scientific production of recent years, and through this contribute to spreading awareness and the incorporation of the same, in a single instrument.

● METHOD

The present study intends to bring together the knowledge existing regarding the instruments for assessing quality in the surgical center, through an integrative review. Taking into consideration the knowledge which it is the authors' intention to synthesize, the review had as its starting point the following question: "What instruments are used in order to evaluate quality in the surgical center?"

After the identification of the theme and selection of the research question, the criteria for inclusion and exclusion of studies were established. The bibliographic research was undertaken between November and December 2015. Works were selected which were published between January 2010 and December 2015, in English, Spanish or Portuguese.

For the literature review, the Scopus database was used. The literature search was undertaken based on use of the following terms: Title-abs-key (Operating room OR operating theatre OR surgery) and Title-abs-key (Instrument OR measure OR tool) and Title-abs-key (Quality of care OR Quality of

health care) (Figure 1), using Boolean language for the cross-linking of the sets under analysis. The research was limited to the title, keywords or descriptors and abstract, with a view to screening the set of documents to be tracked down. The choice of the Scopus database was based on its incorporation in the bibliographic databases EMBASE and MEDLINE, among others which are potentially relevant(7). All the primary articles were included which used instruments for evaluating quality and safety in the surgical center, with review articles being excluded.

After the complete reading of the 36 articles, the final sample was made up of 13 articles which met the inclusion criteria. The analysis of the material was made through critical and qualitative reading which made it possible to identify convergences, making it possible to group these by thematic axes. The critical analysis of the studies included is a phase which is analogous to the analysis of the data of the conventional studies; this phase necessitates an organized approach in order to consider the characteristics of each study⁽⁸⁾.

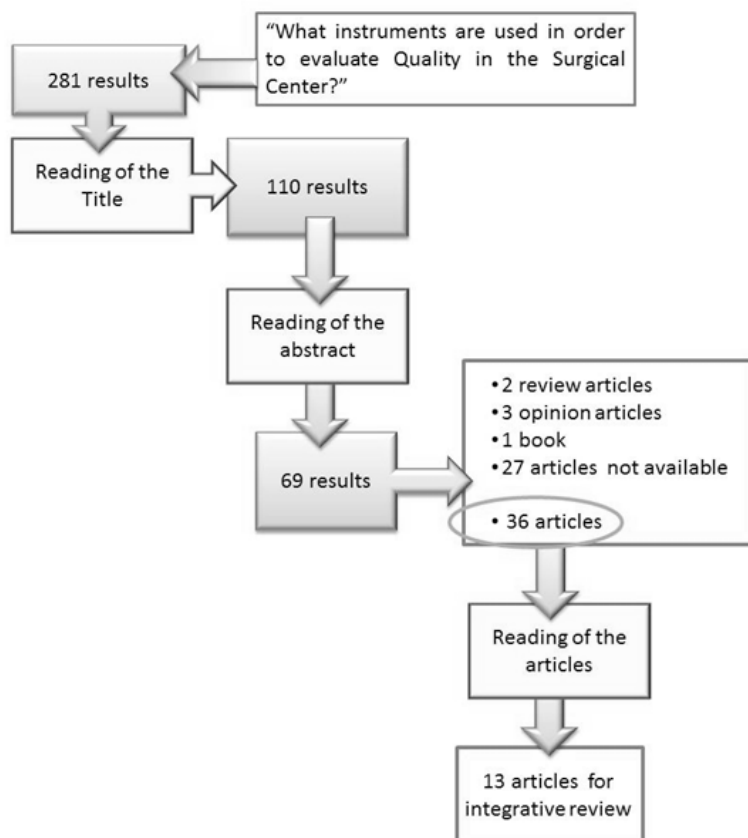


Figure 1 – Construction of the research protocol. Porto-PT, 2016

● RESULTS

The articles were categorized in terms of the studies' methodological paradigms; one study was of a qualitative nature, and 12 were quantitative, being distributed among the following countries: the United Kingdom (5), Ireland (1), Colombia (1), Japan (1), Holland (1), Spain (1), Sweden (1), Turkey (1) and the USA (1).

In relation to the years of publication of the articles, the articles analyzed presented distribution as shown in Figure 2. Note that the research was restricted to the time period between 2010 and 2015.

The results obtained in the study are shown in Table 1, which identifies the title, the authors, the year and the respective categorization.

From the analysis of the studies presented in Table 1, three thematic axes emerged: the structure, the process, and the results. This triad of aspects which are essential for evaluating quality is based on Donabedian's model.

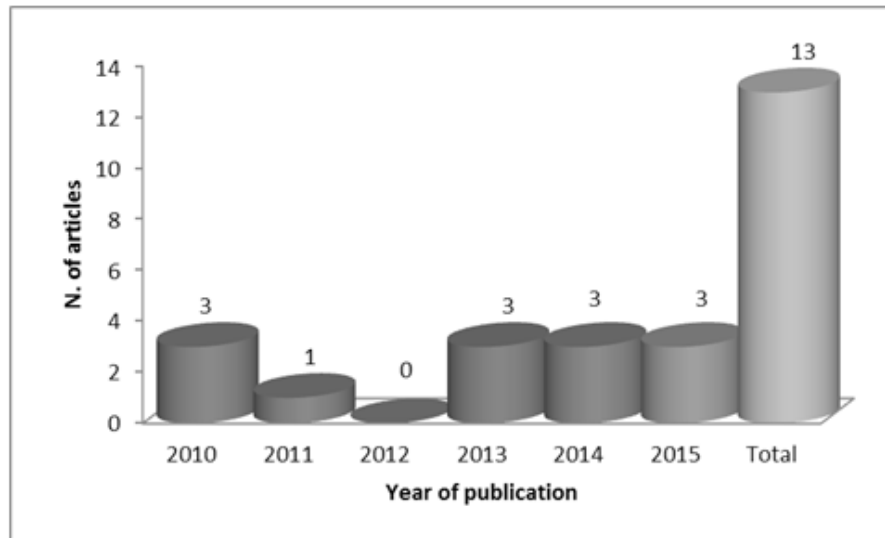


Figure 2 - Distribution of the studies, by year of publication. Porto-PT, 2016

Tabela 1 - Artigos em análise. Porto-PT, 2016

Categories	Code	Authors	Title	Year
Structure	A1	Stepaniak; Vrijland; Quelerij; Vries; Heij ⁽⁹⁾	Working with a fixed operating room team on consecutive similar cases and the effect on case duration and turnover time	2010
	A2	Sedlack ⁽¹⁰⁾	Document The utilization of six sigma and statistical process control techniques in surgical quality improvement.	2010
Process	B1	Hill; Roberts; Alderson; Gale ⁽¹¹⁾	Safety culture and the 5 steps to safer surgery: An intervention study	2015
	B2	Randmaa; Mårtensson; Swenne; Engström ⁽¹²⁾	SBAR improves communication and safety climate and decreases incident reports due to communication errors in an anaesthetic clinic: A prospective intervention study	2014
	B3	Kawano; Taniwaki; Ogata; Sakamoto; Yokoyama ⁽¹³⁾	Improvement of teamwork and safety climate following implementation of the WHO surgical safety checklist at a university hospital in Japan	2014
	B4	Arias; Barajas; Eslava-Schmalbach; Hull; Sevdalis ⁽¹⁴⁾	Translation, cultural adaptation and content re-validation of the observational teamwork assessment for surgery tool	2014
	B5	Pickering; Robertson; Griffin; Collins; McCulloch ⁽¹⁵⁾	Compliance and use of the World Health Organization checklist in UK operating theatres	2013
	B6	Papaspyros; Javangula; Adluri; O'Regan ⁽¹⁶⁾	Briefing and debriefing in the cardiac operating room. Analysis of impact on theatre team attitude and patient safety	2010
	B7	Jothiraj; Howland-Harris; Evley; Moppett ⁽¹⁷⁾	Distractions and the anaesthetist: A qualitative study of context and direction of distraction	2013
Result	C1	Sukha; Sykes; Schofield; Houghton ⁽¹⁸⁾	Inadvertent returns to theatre within 30 days (IRT30) of surgery: An educational tool to monitor surgical complications and improve our performance as surgeons	2015
	C2	Bernalte-Martí; Orts-Cortés; Maciá-Soler ⁽¹⁹⁾	Nursing professionals and health care assistants' perception of patient safety culture in the operating room	2015
	C3	Nugent; Hseino; Ryan; Neary; Keane ⁽²⁰⁾	The surgical safety checklist survey: A national perspective on patient safety	2013
	C4	Donmez; Ozbayir ⁽²¹⁾	Validity and reliability of the 'good perioperative nursing care scale' for Turkish patients and nurses	2011

● DISCUSSION

Although various authors contribute, the model currently in use for assessing quality in the provision of healthcare is Donabedian's model, proposed by the WHO(5). Donabedian, considered the 'high priest' of quality in healthcare⁽²²⁾, developed a model for evaluating quality which became the standard in the domain of the health services⁽²³⁾. This model was introduced for the first time in 1966⁽²⁴⁾ and consists of the assessment of quality in health, founded on three essential components: structure, process and results⁽²²⁾.

Evaluation of Structure

Structure refers to the most stable characteristics and serves to designate the conditions in which the care is provided. The attributes of the structure are more easily observable and more easily documented and tend, in their turn, to be more stable⁽²⁴⁾.

In the global analysis of the articles analyzed, few indicators are described referent to structure^(9,10). In study A1, the authors considered that quality may be controlled through having a fixed team undertakesimilar consecutive cases⁽⁹⁾. In an era characterized by efficiency and evaluation of the cost-benefit of the health care, in which the surgical services are expensive, it is important for the health institutions to use these efficiently. Through a case-control study, A1, the author emphasizes that there is an impact through the use of similar consecutive cases, specifically on the time taken to do the procedure, as well as in the cost of the operations through better scheduling of the surgical resources. These results are well-known for the processes of industrial manufacturing⁽⁹⁾.

Study A2, regarding the use of Six Sigma and statistical techniques for control and improvement of quality in the surgical center, mentions that we have been slow to incorporate techniques trusted in industryin the surgical center⁽¹⁰⁾. The Six Sigma is a quality improvement approach which aims to reduce the number of defects. In the last three decades, it has helped various companies to increase the capacity of their processes and to increase the level of quality of their product or service⁽²⁵⁾.

In study A2, the waiting times between the operations were evaluated through auditing the operating room records of one hospital during a one month period⁽¹⁰⁾. The records of 628 patients who underwent surgery of the colonover a five-year period were analyzed. The mean waiting time between cases was 53 minutes. This revealed that, in general, this institution has 331 hours of nonproductive time between the scheduled procedures. The authors suggest some measures to be included: improvement in the preoperative preparation of the patient, greater efficiency of the waiting time by the surgeon between the operations, and that the traditional scheduling and allocation of operating time in blocks should be substituted with the "Just in time" approach used in industry⁽¹⁰⁾.

Evaluation of the Process

The process refers to all the activities which make up the healthcare. The process indicators make it possible to evaluate how a health care protocol is undertaken or provided⁽⁵⁾. In the articles analyzed, emphasis is placed on the relevant instruments of the area of the processes of quality evaluation⁽¹¹⁻¹⁷⁾.

Study B4 highlights the importance of teamwork for minimizing errors and adverse effects in the surgical center, and translates and validates the "Observational Teamwork Assessment for Surgery" (OTAS) scale⁽¹⁴⁾. The scale incorporates five dimensions: communication, coordination, cooperation, leadership and monitoring. Each behavior is scored on a 7 point scale, varying from 0 to 6, in which 0 indicates a problematic behavior which severely hinders the team, and 6 indicates exemplary teamwork which is highly efficacious in improving the functioning of the team. This instrument can be used for strengthening teamwork and the development of interpersonal skills for the professionals who work in surgical centers⁽¹⁴⁾.

In the teamwork, communication is paramount, evidenced in study B2 as a way of minimizing errors in thesurgical center⁽¹²⁾. The authors undertook an intervention study with a control group,

through the implementation of the “Situation, Background, Assessment, Recommendations” (SBAR) communication tool. This tool is used in high risk organizations for making communication more efficacious and consistent, and has been introduced in the health area. In order to evaluate the impact of the intervention, the authors made use of two scales (“Nurse-Physician Questionnaire” and “Spreitzer’s empowerment scale”) before and after the intervention, concluding that the implementation of the SBAR can improve communication between the professionals, improve the climate of safety and reduce incidents caused by communication errors⁽¹²⁾.

According to study B7, distractions in the surgical center contribute to the occurrence of adverse events, regarding which the authors undertook an observational study. A total of 32 operations were analyzed, over the course of which 3557 potentially disturbing events were observed, of which 1173 (33%) were considered to have occurred due to distraction⁽¹⁷⁾.

The World Alliance for Patient Safety, of the World Health Organization (WHO), identified 10 essential objectives for surgical safety, these objectives being compiled into the surgical checklist which aims to reinforce practices of safety and promote better communication and multidisciplinary teamwork⁽⁵⁾. Some of these aspects have already been mentioned in the studies presented, specifically communication, teamwork and distractions, with emphasis now being placed on the instruments for ensuring safety, specifically, the “Briefing and debriefing” checklist and the five steps to safe surgery.

The concept of the checklist, promulgated and originated by the WHO as a central line of guidance has been widely used⁽⁵⁾. In study B5, however, undertaken in English hospitals, conformity with the WHO Surgical Safety Checklist is far below that indicated by the administrative data, revealing that the direct observation of the actual performance may be below the ideal⁽¹⁵⁾.

In study B3, which addresses the implementation of the checklist, the authors concluded that this improved the teamwork and the climate of safety in a university hospital in Japan. The changes in the teamwork and the climate of safety following the application of the checklist were validated using the “Safety Attitudes Questionnaire (SAQ)” scale. The SAQ is a scale with 12 items which includes the study of human factors, and has been extensively validated in different health services⁽¹³⁾.

The concepts of “briefing and debriefing” are applied in study B6⁽¹⁶⁾. These instruments have been used among commercial and combat pilots, and were formalized for training by the National Aeronautics and Space Administration (NASA), and are now applied in the area of healthcare, firstly in the surgical centers. The briefing establishes a platform for common understanding and collaborative planning. The debriefing constitutes a report in real time and can identify “near-accidents” which are generally not detected by the records. During this point, all the events are reconstructed with emphasis on safety, communication, efficiency and potential for improvement. These instruments have evidenced an impact on the attitude of the team and on patient safety⁽¹⁶⁾.

Lastly, the “5 Steps to Safer Surgery” were implemented in study B1⁽¹¹⁾. “The five steps to safer surgery” (5 SSS) incorporate a briefing, three steps of the WHO Surgical Safety Checklist (SSC) and a debriefing. The Safety Attitude Questionnaire – Operating Room (SAQ-OR) was applied for the evaluation of this intervention, with impact being obtained in the following dimensions: climate of safety, perception of the management, working conditions, satisfaction in the work and teamwork⁽¹¹⁾.

Evaluation of the Result

The result indicators make it possible to assess the results or impact on the population’s health⁽⁵⁾. The results reflect the changes, in the desirable or undesirable direction, which are provoked in the health status of the individual or populations, which can be attributed to the health care. It is also possible to take into account as results the changes related to knowledge and behaviors, as well as to the satisfaction of the client/family and the professionals. Some of these indicators are presented in the articles analyzed⁽¹⁸⁻²¹⁾.

One of the undesirable results of the operations undertaken is the postoperative complications, resulting from this indicator. The authors of study C1 propose the use of an instrument named “IRT30” used for monitoring the surgical complications in an objective way, analyzing all the returns to the operating room up to 30 days after the primary operation⁽¹⁸⁾.

The authors of study C2 assess the perceptions and opinions of the nurses in a surgical center regarding patient safety⁽¹⁹⁾. Through a transversal and observational study, undertaken using the Spanish version of the “Hospital Survey on Patient Safety Culture” questionnaire, they conclude that the principal areas which need interventions are the better funding of the services and the support of the management in matters of patient safety. The “Hospital Survey on Patient Safety Culture” questionnaire is made up of 42 items related to the professionals’ perceptions on the culture of patient safety in 12 dimensions: two dimensions of result, seven dimensions on the unit and three on the hospital⁽¹⁹⁾.

Study C4, on the other hand, assesses the patients’ degree of satisfaction regarding the quality of the perioperative nursing care, through the use of the “Good Perioperative Nursing Care Scale” instrument (GPNCS)⁽²¹⁾. The scale is a Likert-type scale (0-5), and contains 34 items with six dimensions: physical care, the provision of information, support, respect, characteristics of the staff, environment and nursing process⁽²¹⁾.

Finally, the authors of study C3 evaluate, in hospitals in Ireland, the perception of the professionals of the surgical center regarding the use of the checklist through an online questionnaire. These authors conclude that the checklist was not implemented in all the surgical centers in Ireland⁽²⁰⁾. Where it was applied, there is a perception of a positive change in the safety culture. However, so as to optimize the potential benefits associated with this safety instrument, it will be necessary for there to be greater training, support, teamwork and communication. In relation to quality and safety in surgical attendance, the authors emphasize that the same requires more than just a checklist, and requires teamwork, including many other ingredients, specifically the openness of channels of communication, resources, feedback and auditing⁽²⁰⁾.

● CONCLUSION

Quality in the surgical center has been widely publicized in recent years, although more directed towards risk and to patient safety associated with the guidance emanating from the WHO. The present study intended to group together the existing knowledge regarding the instruments for evaluating quality in the surgical center through an integrative review, stimulating discussion around the importance of evaluating quality in the surgical center.

From the integrative review undertaken of the studies under analysis, three thematic areas were identified, which can be overlapped with Donabedian’s model, and proposed by the WHO, specifically: Structure, Process and Result.

This study’s findings reveal instruments which are more frequent in the ambit of the process, and which are essentially associated with the culture of safety and risk proposed by the WHO guidelines; emphasis is also placed on the need for greater development of valid and broad-reaching instruments, bringing together the different components of the evaluation of the quality: structure, process and result; highlighting that the strength of Donabedian’s model lies in the relationships between these indicators, that is, structure influences process, and process – in its turn – influences result. As a result of this, the global evaluation of the health care provided requires the understanding of the three elements, individually, as well as the relationships between these.

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