



Patient safety in plastic surgery: a systematic review

Segurança do paciente em cirurgia plástica: revisão sistemática

OTTO HUASCKAR MUCHINSKI SAUCEDO ¹
ELAINE ROSSI RIBEIRO ^{1*}
JULIANE CENTENO MULLER ¹
IZABEL CRISTINA MEISTER MARTINS
COELHO ¹

Institution: Faculdades Pequeno Príncipe,
Curitiba, PR, Brazil.

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■ ABSTRACT

Introduction: patient safety has become an increasingly present topic in health research. Plastic surgery is a specialty in evidence, and it is necessary to adapt patient safety to its particularities. **Methods:** Systematic review to investigate actions related to patient safety in plastic surgery. MEDLINE and SCIELO were chosen to locate the studies. The descriptors: “patient safety” and “plastic surgery” were used in the MEDLINE database. In SCIELO, the descriptors: “segurança do paciente” e “cirurgia plástica” were used. In both cases, the publication period was between 2012-2018, totaling 15 articles. **Results:** The countries that published the most on the subject were the United States and Brazil. The most frequent concern was safety related to the training of plastic surgery residents. Tools like the checklist have also been used to improve security. Another concern that requires more study will be if the weekends have higher complications with surgeries performed during the week. However, well-formulated medical records, as well as the Informed Consent Form (ICT), appear to have a more solid basis in patient safety. Pre-anesthetic consultation also seems to favor patient safety. Furthermore, finally, the use of WhatsApp seems to be a safe tool, and that improves the care provided by the medical team. **Conclusion:** The need for more in-depth studies on this topic is emphasized, considering that a systematized protocol was not found. **Keywords:** Patient safety; Plastic surgery; Systematic review; Research on health services; Health policy.

¹ Faculdades Pequeno Príncipe, Curitiba, PR, Brazil.

■ RESUMO

Introdução: A segurança do paciente tem se tornado um tema cada vez mais presente nas pesquisas na área da saúde. A cirurgia plástica é uma especialidade em evidência e torna-se necessário adequar a segurança do paciente as suas particularidades. **Métodos:** Revisão sistemática com a finalidade de investigar as ações relacionadas à segurança do paciente em cirurgia plástica. Para localizar os estudos foram escolhidas a MEDLINE e SCIELO. Na Base de dados MEDLINE foram usados os descritores: “patient safety” and “plastic surgery”. Na SCIELO foram usados os descritores: “segurança do paciente” e “cirurgia plástica”. Em ambos os casos o período das publicações foi entre 2012-2018, somando um total de 15 artigos. **Resultados:** Os países que mais publicaram sobre o assunto foram os Estados Unidos e o Brasil. A preocupação mais frequentemente encontrada foi a segurança relacionada à formação do residente de cirurgia plástica. Também ferramentas como o checklist têm sido usadas para a melhoria da segurança. Outra preocupação que exige mais estudos seria se os finais de semana apresentam maiores complicações em relação às cirurgias realizadas durante a semana. Porém, parece ter fundamentos mais sólidos na segurança do paciente o prontuário médico bem formulado, assim como o termo de consentimento informado (TCI). A consulta pré-anestésica também parece favorecer a segurança do paciente. E, por fim, o uso do WhatsApp que parece ser uma ferramenta segura e que incrementa o atendimento da equipe médica. **Conclusão:** Ressalta-se a necessidade de estudos mais aprofundados sobre esta temática, considerando-se que nenhum protocolo sistematizado foi encontrado. **Descritores:** Segurança do paciente; Cirurgia plástica; Revisão sistemática; Pesquisa sobre serviços de saúde; Política de saúde.

INTRODUÇÃO

Patient safety has become an increasingly present topic in health research, which worries researchers around the world¹.

Concomitantly, the demand for plastic surgery has become more and more frequent due to the advent of new technologies and social acceptance. Culturally, plastic surgery is considered a safe procedure for the patient, however it is emphasized that there are associated risks as in any other surgical procedure².

We need to use History to discuss this topic, from Hippocrates, with the famous phrase “*Primum non nocere*,” to Florence Nightingale, an English nurse, who in the 19th century, when working in the Crimean War, advocated quality care for wounded soldiers.

A global landmark on the subject was the report “To err is human: building a safer health system,” which brought up the debate on deaths due to health errors in the United States.

In Brazil, the bedside book was written by Souza and Mendes, in 2014³, authors who studied the subject and that demonstrate the specific conceptual aspects of the subject area and also a historical and legal contextualization on safety and quality in health services.

The World Health Organization (WHO) launched, in 2004⁴, the World Alliance for Patient Safety, with the purpose of awakening the commitment among health professionals to improve the safety of patient care, being the surgical environment a first place to implement security practices⁵.

In 2011, the International Joint Commission (IJC) launched the six International Goals for Patient Safety (IGPS), which are: 1 - correct patient identification; 2 - good hand hygiene practices; 3 - effective communication; 4 - safe surgery; 5 - safety in the prescription, dispensing, administration/use of medications, diets and blood components; 6 - prevention of falls and pressure injuries.

Sequentially, the National Patient Safety Program (PNSP), instituted by the Ministry of Health (MS), was launched in 2013⁶, which aims to incorporate assistance, educational and programmatic actions in the context of medical care, to reduce the number of adverse events that can lead to any type of harm to the patient. These actions include the implementation of Patient Safety Centers in health facilities, which include risk management and monitoring of patient safety⁷.

In this sense, in relation to the surgical patient, concern has increased due to the high incidence of errors and adverse events, which in approximately 50% of cases could have been avoided⁸.

Regarding patient safety, it is recurrent in the literature that there are several benefits in the implementation of preventive measures against adverse events in the operating room, among which the application of safety checklists in surgery stands out, due to their effectiveness in the reduction of preventable surgical complications, infections and, consequently, mortality⁹.

The surgical safety checklist (SSC) is part of the actions proposed by the Ministry of Health, in the Safe Surgery Program saves lives, and should be applied before anesthetic induction and surgical incision and at the end of the procedure, before the patient leaving the operating room¹⁰.

Carrying out studies on the safety of the surgical patient and the implementation of preventive measures are extremely positive actions, with a relevant impact factor, since according to the WHO recommendations there are three ways to achieve patient safety: prevention of adverse events, the discussion of adverse events that occurred, making them visible and minimizing their effects through assertive interventions⁴.

Given this scenario, there are attempts made to identify in the literature protocols, activities, and programs related to patient safety in plastic surgery, to investigate actions related to patient safety in plastic surgery.

METHODS

It is a systematic review of the literature, a research designed to be methodical, explicit and reproducible, which requires the elaboration of a clear research question, definition of the search strategy and inclusion and exclusion criteria, and a thorough data analysis¹¹.

In this sense, the terms “patient safety” and “plastic surgery” were investigated in the Cochrane Library using the fields: Title, Abstract, Keywords, and All fields. Three systematic reviews were

found, namely: 1 - “Perioperative corticosteroids for preventing complications following facial plastic surgery,” whose objective is to determine the effects of perioperative administration of corticosteroids; 2 - “Wound drainage after plastic and reconstructive surgery of the breast” the objective of which is to compare the safety and efficacy of the use of wound drains after elective plastic procedures and reconstructive breast surgery; 3 - “Surgical orbital decompression for thyroid eye disease,” to review the current published evidence on the efficacy of surgical orbital decompression for disfiguring proptosis in adult thyroid eye disease and summary information on possible complications and quality of identified studies. Therefore, the reviews sent to Cochrane have, in fact, objectives that are diametrically opposed to the purpose of this review.

Next, the researchers analyzed the 27 elements of PRISMA (Preferred Reporting Elements for Systematic Review and Meta-analysis Statement) to verify the essential parts of a systematic review.

To answer the research question, the researchers searched the databases for descriptors: “*segurança do paciente*”, “*cirurgia plástica*” e “*protocolos*”. Although it was investigated in different bases, the result was null, that is, in no base were articles found on this topic. Finally, after reflections, the PVO was established as follows:

P: patient safety;

V: patient safety in plastic surgery;

O: actions related to patient safety in plastic surgery.

To locate the studies, the databases chosen were MEDLINE and SCIELO.

The following keywords were used in the MEDLINE database: “patient safety” and “plastic surgery,” found in the title and abstract, and the following filters were applied: language: Portuguese, English and Spanish, text full and publication period between 2012-2018, using the primary Mesh.

In SCIELO, the descriptors: “patient safety” and “plastic surgery” were used in all the indices, and the following filters were applied: language - Portuguese, English and Spanish, thematic area of health sciences, full text available and Publication period between 2012-2018.

Regarding the search results, in MEDLINE, there were a total of 55 articles initially, of these, 33 were excluded because they did not meet the research objectives, two were excluded for not meeting the language filter, 1 in Swedish and 1 in German, and 2 for being repeated. After this first analysis, for the critical evaluation of the studies, four articles were excluded, since during the in-depth reading it was observed

that there was no adherence to the question and the research objectives, three were eliminated because they presented low evidence (level of evidence 3 and 4) indicated by the author of the articles and the magazine, a total of 11 articles from this database to compose the sample.

In SCIELO, there were a total of 11 articles in the initial search, of which one was excluded because it was a case study, and six were excluded after reading titles and abstracts, without meeting the research question and objectives, totaling four articles from this database to compose the sample.

There were 15 articles left to compose the final sample after adding the search results from the two databases, as shown in Figures 1 and 2.

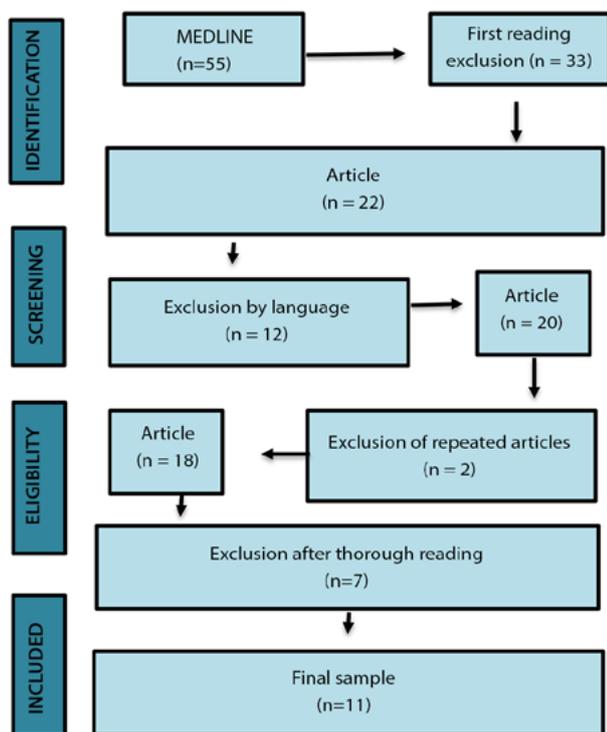


Figure 1. Flowchart for the selection of MEDLINE articles.

RESULTS

For analysis of the sample of this study, the following tables were constructed (Tables 1 to 4).

DISCUSSION

The studies that integrated the sample of this systematic review show that in 2016 there were four publications, with the largest number, followed by the years 2015 and 2012, with three publications on the subject studied, the rest published one article per year. The most prevalent countries found in the production of works on patient safety in plastic

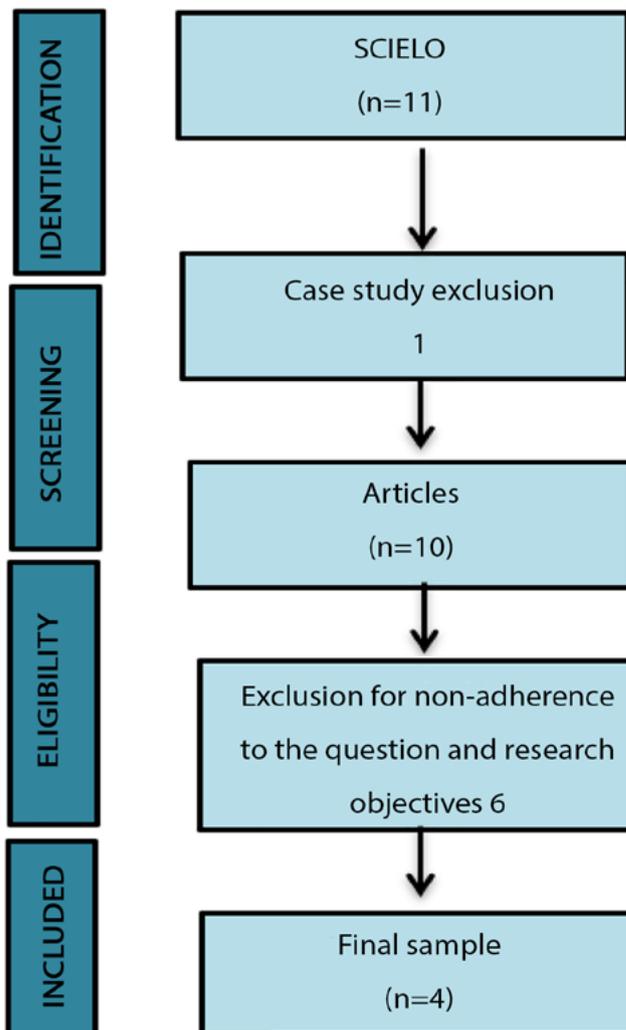


Figure 2. Flowchart for the selection of SCIELO articles.

surgery were the United States and Brazil, with about 46% of the works being American and 33% of Brazilian works, 13% are from German authors, and 6.6 % are English.

As for the types of studies carried out, 26.5% of them were intervention research, 20.1% cohort, 20.1% retrospective, 13.3% analytical study, 13.3% retrospective correlational, and 6.7% transversal series.

The study participants were mostly patients with 41%; health professionals accounted for 18% of the participants; 12% were residents, and 6% a more specific population, pediatric patients.

After presenting the overview of the selected articles, for the best didactic effect, the content of the articles in the sample was divided into three categories, namely:

1. Preoperative period;
2. Transoperative period;
3. Perioperative period.

Chart 1. Title, authors and year of selected articles.

N. and Database	Title	Authors	Year
1. MEDLINE (24)	Impact of an event reporting system on resident complication reporting in plastic surgery training: addressing an ACGME and Plastic Surgery Milestone Project Core Competency.	Parikh PR, Snyder-Warwick A, Naidoo S, Skolnick GB, Patel KB ²⁴	2017
2. MEDLINE (16)	Aesthetic plastic surgery checklist: a safety tool.	Sucupira E, Matta R, Zuker P, Matta J, Arbeláez JP, Uebel CO ¹⁶	2016
3. MEDLINE (19)	WhatsApp: improvement tool for surgical team communication.	Sidhoum N, Dast S, Abdulshakoor A, Assaf N, Herlin C, Sinna R ¹⁹	2016
4. MEDLINE (22)	The impact procedures. of resident participation in outpatient plastic surgical procedures.	Massenburg BB, Sanati-Mehrziy P, Jablonka EM, Taub PJ ²²	2015
5. MEDLINE (23)	Resident Cosmetic Clinic: Practice Patterns, Safety, and Outcomes at an Academic Plastic Surgery Institution.	Qureshi AA, Parikh RP, Myckatyn TM, Tenenbaum MM ²³	2016
6. MEDLINE (25)	Surgical Precision in Clinical Documentation Connects Patient Safety, Quality of Care, and Reimbursement.	Kittinger BJ, Matejicka II A, Mahabir RC ²⁵	2016
7. MEDLINE (20)	The weekend effect in plastic surgery: analyzing weekday versus weekend admissions in body contouring procedures from 2000 to 2010.	Tadisina KK, Chopra K, Singh DP ²⁰	2015
8. MEDLINE (18)	Patient safety in plastic surgery: identifying areas for quality improvement efforts.	Hernandez-Boussard T, McDonald KM, Rhoads KF, Curtin CM ¹⁸	2015
9. MEDLINE (21)	Aesthetic surgery performed by plastic surgery residents: an analysis of safety and patient satisfaction.	Koulaxouzidis G, Momeni A, Simunovic F, Lampert F, Bannasch H, Stark GB ²¹	2014
10. MEDLINE (14)	Training in aesthetic surgery at a university clinic - the Munich model.	Rezaeian F, Schantz JT, Sukhova I, Schenck TL, Giunta RE, Harder Y, Machens HG, Müller D ¹⁴	2013
11. MEDLINE (26)	Our own worst enemy.	Swanson E ²⁶	2016
12. SCIELO (15)	Comparison of surgical infection rates after implantation of the safety checklist.	Prates CG, Stadnik CM, Bagatini A, Caregnato RC, Moura GM ¹⁵	2018
13. SCIELO (12)	Use of the informed consent term in cosmetic plastic surgery.	Doncatto LF ¹²	2012
14. SCIELO (17)	Lipoabdominoplasty in the aesthetic treatment of the abdomen: 5-year experience.	Amorim Filho HC, Amorim CCB ¹⁷	2012
15. SCIELO (13)	Anesthetic complications in plastic surgery and the importance of pre-anesthetic consultation as a safety tool.	Schwartzman UP, Batista KT, Duarte LTD, Teixeira D, Saraiva RA, Fernandes MC, et al. ¹³	2011

Source: Author, 2019.

Chart 2. Objectives and country of the selected articles.

N. and Database	Objectives	Country
1. MEDLINE	The Accreditation Council for Graduate Medical Education and Plastic Surgery Milestone Project has identified practice-based learning and improvement, which involves systematically analyzing current practices and implementing changes, as a core competency in residency education. In surgical care, complication reporting is an essential component of practice-based learning and improvement as complications are analyzed in morbidity and mortality conference for quality improvement. Unfortunately, current methods for capturing a comprehensive profile of complications may significantly underestimate the true occurrence of complications. Therefore, the objectives of this study are to evaluate an intervention for complication reporting and compare this to current practice, in a plastic surgery training program.	USA
2. MEDLINE	About one in ten patients experiences iatrogenic events, and more than half of these occur in the perioperative environment. The objective of this study was to develop a complete and functional checklist for aesthetic plastic surgery and test it in patients who would undergo elective plastic surgeries.	Brazil
3. MEDLINE	Concerns about the security of WhatsApp and the possibility of spreading patients data and image	England

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4. MEDLINE	Ensuring patient safety, along with a complete surgical experience for residents, is of utmost importance in plastic surgical training. The effect of resident participation on the outcomes of outpatient plastic surgery procedures remains largely unknown. We assess the impact of resident participation on surgical outcomes using a prospective, validated, national database.	USA
5. MEDLINE	Comprehensive aesthetic surgery education is an integral part of plastic surgery residency training. Recently, the ACGME increased the minimum requirements for aesthetic procedures in residency. To expand aesthetic education and prepare residents for independent practice, our institution has supported a resident cosmetic clinic for over 25 years.	USA
6. MEDLINE	To evaluate the safety of procedures performed through a resident clinic by comparing outcomes to benchmarked national aesthetic surgery outcomes and to provide a model for resident clinics in academic plastic surgery institutions.	
6. MEDLINE	Emphasis on quality of care has become a major focus for healthcare providers and institutions. The Centers for Medicare and Medicaid Services has multiple quality-of-care performance programs and initiatives aimed at providing transparency to the public, which provides the ability to compare services provided by hospitals and individual physicians directly. These quality-of-care programs highlight the transition to pay for performance, rewarding physicians and hospitals for high quality of care. To improve the use of pay for performance and analyze quality-of-care outcome measures, the Division of Plastic Surgery at Scott & White Memorial Hospital participated in an inpatient clinical documentation accuracy project (CDAP).	USA
7. MEDLINE	Body contouring operations are a quickly becoming the most commonly performed operations by American plastic surgeons, mirroring the increase in bariatric surgery in the US over the last decade. Despite previous studies showing worse patient outcomes on weekend admissions for non-emergent cases (spine, breast, and hernia), there is no comparative data reported regarding body contouring procedures.	USA
8. MEDLINE	The authors aimed to determine whether body contouring surgery results in worse outcomes when performed on weekends versus weekdays.	
8. MEDLINE	Improving the quality of healthcare is a global priority. Before quality benchmarks are established, we first must understand rates of adverse events. This project assessed risk-adjusted rates of inpatient adverse events for soft tissue reconstructive procedures.	USA
9. MEDLINE	Aesthetic surgery is an integral component of plastic surgery. Despite its importance, adequate training in aesthetic surgery is met with challenges. Although the educational benefit of resident clinics has been demonstrated, such clinics are rarely found outside the United States. The objective of the present study was to assess safety and patient satisfaction associated with aesthetic surgery procedures performed by plastic surgery residents at a German academic medical center.	Germany
10. MEDLINE	Objective of the present study was the development, implementation and evaluation of a new training concept in aesthetic surgery.	Germany
11. MEDLINE	To identify risk factors by analyzing a national or regional database. The trend started with risk stratification for venous thromboembolism. Today, the plastic surgeon may be confronted by a number of challenges to his or her care of a patient who suffers a venous thromboembolism (VTE). If the plastic surgeon does not successfully clear each hurdle, the surgeon may be deemed responsible for a bad outcome. The pathophysiology of venous thromboembolism remains poorly understood in plastic surgery. Consequently, there is little scientific justification for holding a plastic surgeon negligent for not conforming with these numerous presumed safety criteria	USA
12. SCIELO	Objective To compare surgical site infection rates in clean surgery before and after the implementation of the checklist adopted by the World Health Organization.	Brazil
13. SCIELO	The informed consent form represents security for the plastic surgeon and the patient, and its use is recommended by the Consumer Protection Code. The most frequent causes of the actions and the main evidential elements that led to the condemnation or acquittal of the cases were evaluated.	Brazil
14. SCIELO	This study aimed to demonstrate the surgical technique of lipoabdominoplasty adopted by the senior author over five years and to evaluate results and complications in patients with indication for classic abdominoplasty.	Brazil
15. SCIELO	The authors describe the anesthetic complications in Plastic Surgery observed, over a year, at Hospital Sarah Brasília and contextualize the importance of pre-anesthetic consultation.	Brazil

Source: Author, 2019.

Chart 3. Research method and participants of the selected articles.

N. and Database	Method	Participants
1. MEDLINE	This is a preintervention and postintervention study evaluating resident reporting of complications on a plastic surgery service. The intervention was an online event reporting system developed by department leadership and patient safety experts. The cohorts consisted of all patients undergoing surgery during two separate 3-month blocks bridged by an implementation period. A trained reviewer recorded complications, and this served as the reference standard. Fisher's exact test was used for binary comparisons.	The pre-intervention and post-intervention cohorts consisted of all patients having surgery on the pediatric plastic surgery service during two separate 3-month blocks bridged by a transition period for intervention implementation. The pre-intervention evaluation occurred from June 2015 to August 2015 and the post-intervention evaluation occurred from October 2015 to December 2015.
2. MEDLINE	Patient data were collected from a general hospital and the particular clinic between October 2013 and October 2015, through history, physical examination, diagnosis, laboratory tests, pre-, during, and postoperatively, and complications. An expanded safety checklist was developed and optimized for aesthetic plastic surgery based on the model presented by the WHO in 2009 with reference to the information related to the prevention of more frequent complications in this specialty.	Patient data were collected from a general hospital and the particular clinic between October 2013 and October 2015, through history, physical examination, diagnosis, laboratory tests, pre-, during, and postoperatively, and complications
3. MEDLINE	A retrospective was conducted, reviewing the number of messages performed using WhatsApp Messenger, and also evaluating its content from 1 April 2013 to 31 December 2013. Number of messages were differentiated regarding age, and the app use was evaluated comparing users over and under 45-years-old. Any interference with medical devices in the operating room was registered.	All health professionals involved in the surgical treatment of the patients
4. MEDLINE	We identified all outpatient procedures performed by plastic surgeons between 2007 and 2012 in the American College of Surgeons National Surgical Quality Improvement Program database. Multivariate regression models assessed the impact of resident participation when compared to attending alone on 30-day wound complications, overall complications, and return to the operating room (OR).	All outpatient procedures performed by plastic surgeons between 2007 and 2012 in the American College of Surgeons National Surgical Quality Improvement Program database
5. MEDLINE	We identified a consecutive cohort of patients who underwent procedures through our resident cosmetic clinic between 2010 and 2015. Major complications, as defined by CosmetAssure database, were recorded and compared to published aesthetic surgery complication rates from the CosmetAssure database for outcomes benchmarking. Fisher's exact test was used to compare sample proportions.	Patients who underwent procedures through our resident cosmetic clinic between 2010 and 2015.
6. MEDLINE	The Division of Plastic Surgery had been identified within our institution as having an opportunity for improvement in documentation. After institutional review board approval, the division engaged in a top-down educational effort aimed specifically at improving the institutional culture related to clinical documentation. Clinical providers at all levels of training, including senior staff and resident physicians, were educated on DRGs and documentation. Preprinted forms were added to every patient's chart to facilitate capturing CCs and events of the hospitalization. These forms were reviewed daily and were also used as part of the discharge summary.	Clinical providers at all levels of training, including senior staff and resident physicians
7. MEDLINE	A serial cross-sectional study of body contouring patients was performed using the Nationwide Inpatient Sample database from 2000 to 2010. Data were gathered using international classification of diseases, ninth revision codes for liposuction and reduction of adipose tissue (86.83) for weekday and weekend admissions, including demographics, hospital charges, and patient outcomes.	A serial cross-sectional study of body contouring patients was performed using the Nationwide Inpatient Sample database from 2000 to 2010.
8. MEDLINE	Patients receiving soft tissue reconstructive procedures from 2005–2010 were extracted from the Nationwide Inpatient Sample. Inpatient adverse events were identified using patient safety indicators (PSI), established measures developed by Agency for Healthcare Research and Quality.	Patients receiving soft tissue reconstructive procedures from 2005–2010 were extracted from the Nationwide Inpatient Sample

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9. MEDLINE	The study had 2 components, namely, a retrospective chart review and an administration of a patient satisfaction survey. Only patients who underwent a surgical intervention by a plastic surgery resident between 2003 and 2011 were included in the study. Parameters of interest included age, sex, procedure performed, number of procedures, revenue (in &OV0556;), length of follow-up, revision rate, and postoperative complication rate. Patient satisfaction was assessed by the client satisfaction questionnaire-8.	Only patients who underwent a surgical intervention by a plastic surgery resident between 2003 and 2011 were included in the study
10. MEDLINE	Over a period of 2 years, 304 aesthetic operations were performed in the fields of body contouring, breast surgery and facial surgery as an educational surgery . Educational surgeries were performed by resident surgeons under the guidance of experienced specialists and under favourable financial conditions. As indicator for safety of the interventions, the incidence of complications was recorded and assessed.	Resident surgeons under the guidance of experienced specialists.
11. MEDLINE	138 clinical trials about venous thromboembolism like a predictable event, with potentially dire consequences to the “noncompliant” surgeon, compounding the tragedy	Plastic surgery patient suffers VTE
12. SCIELO	Observational, descriptive, retrospective correlational study carried out in a general hospital.	Sample consisting of 15,319 records of clean surgeries for trauma-orthopedics, cardiovascular, plastic, general and urology specialties monitored by the Hospital Infection Control Service.
13. SCIELO	Analysis of 100 judgments of the Courts of Justice of 5 Brazilian states, in cases involving aesthetic plastic surgery. The retrospective study was carried out from July 2010 to August 2012, in a universe of 3,427 plastic surgeons. The most frequent causes of the actions and the main evidential elements that led to the condemnation or acquittal of the cases were evaluated.	3,427 plastic surgeons.
14. SCIELO	A retrospective study was carried out, by reviewing medical records, of a group of 162 patients who underwent lipoabdominoplasty associated or not with other procedures, from May 2006 to May 2011, at the Hermínio Amorim Nucleus - Plastic Surgery and Aesthetic Treatments (Lavras, SP, Brazil). The age of the patients varied between 33 years and 62 years.	A group of 162 lipoabdominoplasty. Patients undergoing lipoabdominoplasty.
15. SCIELO	A retrospective and analytical cohort study of hospital patients was carried out, focused on causality, addressing the anesthetic complications of surgical procedures performed by the Plastic Surgery team and other specialties at Hospital Sarah Brasília. The anesthetic consultation performed routinely in the preoperative period was described.	Retrospective and analytical cohort study of hospital patients addressing anesthetic complications.

Source: Author, 2019.

Preoperative period category

Surgery always begins with the patient in the office when the benefits and risks of the procedure to be performed are explained. In this sense, it is necessary to use the term of informed consent (ICT). Doncatto, in 2012¹², performed a retrospective analysis on 100 judgments of the Courts of Justice of 5 Brazilian states, from July 2010 to August 2012, in cases related to cosmetic plastic surgery, excluding cases of restorative plastic surgery. The last 20 trials of each state were considered, covering a total of approximately 3,427

active plastic surgeons, where the most frequent causes of the actions and the main evidentiary elements that led to the conviction or acquittal of the cases were evaluated. The author noted that in cases of medical process, in addition to a favorable expert opinion, the appropriate use of the consent form was the most relevant aspect in cases in which there was absolution.

Therefore, the Informed Consent Form represents safety for the plastic surgeon and the patient, since it equals and consolidates the relationship of trust and transparency between the two, fulfilling the obligation of the doctor to inform the patient and in turn that

Chart 4. Results and Conclusions of the selected articles.

N. and Database	Results and Conclusions
1. MEDLINE	<p>There were 32 complications detected in 219 patients from June to August of 2015 and 35 complications in 202 patients from October to December of 2015. The proportion of complications reported in the preintervention group was nine of 32 (28.1 percent). After the intervention, this significantly increased to 32 of 35 (91.4 percent) ($p < 0.001$).</p> <p>An intervention utilizing an event reporting system, supported by departmental leadership, led to significant improvements in complication reporting by plastic surgery residents.</p>
2. MEDLINE	<p>The tool was applied to 486 patients, of whom 430 (88%) were women and 56 (12%) were men. The most frequently performed procedure was liposuction with 30% of cases, and the most widely used type of anesthesia (39%) was local anesthesia + sedation. The greater adherence of professionals to the checklist was the group of residents (98%). The observed complications were seromas (7%), other complications unrelated to the wound (3%), and hematoma (0.2%) in only one patient who underwent facelift.</p> <p>The use of the checklist in addition to allowing data collection and the identification of potential risks promoted favorable changes in the attitudes of some professionals and generated interest in patient safety and teamwork.</p>
3. MEDLINE	<p>Instant messaging can be used as a valuable tool in order to coordinate surgical teams. We consider this as a valuable approach in order to streamline the communication between members. We consider that future development of specific apps to improve communication between health professionals is granted.</p>
4. MEDLINE	<p>A total of 18,641 patients were identified: 12,414 patients with an attending alone and 6227 with residents participating. The incidence of overall complications, wound complications, and return to OR was increased with resident participation. When confounding variables were controlled for in multivariate analysis, resident participation was no longer associated with increased risk of wound complications. When stratified by year, incidence of overall complications, wound complications, and return to OR in the resident participation group are trending down and fail to be significantly different in 2011 and 2012. Multivariate analysis shows a similar trend.</p> <p>Resident participation is no longer independently associated with increased complications in outpatient plastic surgery in recent years, suggesting that plastic surgical training is successfully continuing to improve in both outcomes and safety. Additional prospective studies that characterize patient outcomes with resident seniority and the degree of resident participation are warranted.</p>
5. MEDLINE	<p>Two hundred and seventy-one new patients were evaluated and 112 patients (41.3%) booked surgery for 175 different aesthetic procedures. There were 55 breast, 19 head and neck, and 101 trunk or extremity aesthetic procedures performed. The median number of preoperative and postoperative visits was 2 and 4 respectively with a mean follow-up time of 35 weeks. There were 3 major complications (2 hematomas and 1 infection requiring IV antibiotics) with an overall complication rate of 1.7% compared to 2.0% for patients in the CosmetAssure database ($p = .45$).</p> <p>Surgical outcomes for procedures performed through a resident cosmetic clinic are comparable to national outcomes for aesthetic surgery procedures, suggesting this experience can enhance comprehensive aesthetic surgery education without compromising patient safety or quality of care.</p>
6. MEDLINE	<p>Performance and improvement on metrics such as case mix index, severity of illness, risk of mortality, and geometric mean length of stay were assessed after implementation. After implementation of the CDAP, the division of plastic surgery showed increases in case mix index, calculated severity of illness, and calculated risk of mortality and a decrease in length of stay. For academic plastic surgeons, quality of care demands precise documentation of each patient. The CDAP provides one avenue to hone clinical documentation and performance on quality measures.</p> <p>Implementation of a CDAP resulted in increases in CMI, calculated SOI, and calculated ROM and a decrease in length of stay. The Division of Plastic Surgery was able to improve its documentation and, in doing so, improved the recognition of the complexity of the patients it was treating. As transparency in outcomes becomes a reality, it is critical for institutions to be compared with those treating similar patients. In this study, an endeavor to improve documentation proved fruitful in terms of both quality of care and financial reimbursement for the hospital.</p>
7. MEDLINE	<p>A total of 50,346 hospital admission cases of inpatient body contouring were examined over the 11-year period, 98% of which were on a weekday. When compared to weekday admissions, weekend admissions were associated with a statistically significant increase in hospitalization costs (\$35,481, $p < 0.000$) and in hospital length of stay (5.68 days, $p < 0.000$). Mortality rates were found to be higher on weekend admissions (3.7%) versus weekdays (0.5%) as well. Although outcomes are multifactorial, in body contouring patients, weekday admission is associated with favorable outcomes in terms of length of stay and hospital charges.</p>

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8. MEDLINE	<p>We identified 409,991 patient with soft tissue reconstruction and 16,635 (4.06%) had a PSI during their hospital stay. PSIs were associated with increased risk-adjusted mortality, longer length of stay, and decreased routine disposition ($p < .01$). Patient characteristics associated with a higher risk-adjusted rate per 1,000 patients at risk (RAR) included older age, men, non-white, and public payer ($p < .05$). Overall, plastic surgery patients had significantly lower RAR compared to other surgical inpatients for all events evaluated except for failure to rescue and postoperative hemorrhage or hematoma, which were not statistically different. RAR of hematoma hemorrhage were significantly higher in patients receiving size-reduction surgery, and these rates were further accentuated when broken down by gender and payer.</p> <p>In general, plastic surgery patients had lower rates of in-hospital adverse events than other surgical disciplines, but PSIs were not uncommon. With the establishment of national basal PSI rates in plastic surgery patients, benchmarks can be devised and target areas for quality improvement efforts identified. Further prospective studies should be designed to elucidate the drivers of adverse events identified in this population.</p> <p>A total of 273 aesthetic procedures were performed in 206 patients with an increase in recent years. The median follow-up period was 49.5 months. The most frequently performed procedures were liposuction ($n = 59$), breast augmentation ($n = 53$), and upper eyelid blepharoplasty ($n = 31$). One hundred ninety-two (90.3%) patients had an uneventful postoperative course. The client satisfaction questionnaire-8 questionnaire was completed by 110 patients (response rate, 50.2%). The median value of 28 indicates a high degree of patient satisfaction. An association between occurrence of major complications and patient satisfaction was seen.</p>
9. MEDLINE	<p>Aesthetic surgery performed by plastic surgery residents under supervision by attending physicians is safe and provides for high levels of patient satisfaction postoperatively. Offering these services may be able to bridge the gap between providing high-quality aesthetic surgery training while yet recruiting an increasing number of patients who may appreciate the lower fees associated with these services.</p> <p>The presented training concept aims at ensuring high quality in patient care by structure and quality of surgical training. Our data give evidence that a structured training of residents in the field of aesthetic surgery is possible without loss in quality. We expect that sufficient surgical education and the associated quality will consequently contribute to keep aesthetic surgeries a domain of plastic surgery and to prevent these procedures from being taken over by other surgical disciplines.</p>
10. MEDLINE	<p>Aesthetic surgery performed by plastic surgery residents under supervision by attending physicians is safe and provides for high levels of patient satisfaction postoperatively. Offering these services may be able to bridge the gap between providing high-quality aesthetic surgery training while yet recruiting an increasing number of patients who may appreciate the lower fees associated with these services.</p> <p>The presented training concept aims at ensuring high quality in patient care by structure and quality of surgical training. Our data give evidence that a structured training of residents in the field of aesthetic surgery is possible without loss in quality. We expect that sufficient surgical education and the associated quality will consequently contribute to keep aesthetic surgeries a domain of plastic surgery and to prevent these procedures from being taken over by other surgical disciplines.</p>
10. MEDLINE	<p>The presented training concept aims at ensuring high quality in patient care by structure and quality of surgical training. Our data give evidence that a structured training of residents in the field of aesthetic surgery is possible without loss in quality. We expect that sufficient surgical education and the associated quality will consequently contribute to keep aesthetic surgeries a domain of plastic surgery and to prevent these procedures from being taken over by other surgical disciplines.</p>
11. MEDLINE	<p>It concludes that operating more than 3 hours is an independent predictor of complications. However, correlation does not imply causation; longer operations are usually longer because there are problems, not the other way around. The same is true for inpatient surgery, also identified as a risk factor. Factor V Leiden and a history of venous thromboembolism are well-known risk factors, but are dwarfed by the increased risk associated with advancing age. Routine preoperative screening for coagulopathies is unhelpful, simply because affected patients are still at a low risk even if the risk is doubled or tripled. Importantly, individual risk stratification does not consider the specific diagnosis and type of procedure. As a practical matter (and as any surgeon exposed to these forms in surgical facilities can attest), risk stratification is not consistently implemented.</p>
12. SCIELO	<p>There was a significant reduction in the surgical site infection rate in clean surgeries when comparing the pre and post-implantation periods of the checklist proposed by the World Health Organization.</p>
13. SCIELO	<p>This study allowed us to observe that in cases of aesthetic plastic surgery in which there was absolution, the appropriate use of ICT and the medical expertise of the expert of the court were predominantly favorable to the physician.</p>
14. SCIELO	<p>The lipoabdominoplasty technique is a safe procedure, with a low rate of complications, as long as the safety criteria are respected, which allows obtaining a well-vascularized flap, with preservation of perforating arteries. The association of liposuction technique performed on the abdomen and body contour is considered safe and essential in the search for better body harmony, for better aesthetic results and, consequently, for greater patient satisfaction.</p>
15. SCIELO	<p>In the present study, the incidence of anesthetic complications was 8%, mainly cardiovascular, and all had a favorable outcome.</p>

Source: Author, 2019.

this patient declares that understood and that he/she agrees to submit to the proposed treatment, allowing the doctor legal certainty, unless the term has been obtained irregularly.

Many lawyers have considered plastic surgery to be a result-binding specialty. Therefore, there is a condemnation without any malpractice, imprudence or

negligence, disregarding the biological, technical and specific aspects of the patient. Doncatto, in 2012¹², (p. 353) still notes that:

“Brazilian judges are increasingly adopting a new jurisprudence, in line with a contemporary trend and following in the footsteps of the French and Canadian trends,

which consider cosmetic plastic surgery as best-efforts contract, therefore, require testing the guilt of the doctor to condemn him. “

The required result obligation of cosmetic plastic surgery has generated uneasiness in the medical profession, as many judges have not yet understood that it is impossible to guarantee results in all types of surgery, as organic tissues react differently to the will of both the physician and the patient. In this perspective, the author considers that the consent form leaves the doctor-patient relationship in addition to being transparent, respectful in the sense of the patient's autonomy for his body, aware of the advantages and disadvantages, risks, and possible results. He says: “in turn, the plastic surgeon, when using the ICT properly, demonstrates suitability, good intentions, good principles and honesty, a fact that becomes an attenuator¹².

The consent form must provide adequate and sufficient information, containing the nature and purpose of the treatment, the probable risks and benefits, the alternative treatments, in addition to the risks of failing to perform the proposed treatment or the alternatives. Doncatto, in 2012¹², observed that in cases of medical process, in addition to a favorable expert opinion, the proper use of the consent form was the most relevant aspect in cases in which there was an acquittal.

The article called “Anesthetic complications in plastic surgery and the importance of pre-anesthetic consultation as a safety instrument” already points to the aspect of patient safety according to the pillars of the Federal Council of Medicine, which says it has been mandatory since 2006, the pre-anesthetic consultation (CFM, in 2016X). Schwartzman et al., In 2011¹³, in a retrospective and analytical cohort study of hospital patients, discussed the anesthetic complications of surgical procedures in a given hospital in Brazilia. In the preoperative periods, pre-anesthetic consultations were carried out with clinical evaluation and description of the anesthetic plan.

The authors, in agreement with Doncatto, in 2012¹², previously presented, also state that the informed consent form was signed, which is kept confidential, attached to the medical record. The focus of this study was the main information obtained in the pre-anesthetic consultation and the classification of the patient's physical state.

As a result of this study, it was found that 6365 anesthetic procedures were performed between April 2006 and December 2007, and of these, 2.74% had an anesthesia-related complication rate. Several specialties have been researched, and concerning plastic surgery,

even with complex procedures for reconstruction of the upper limb (neurotendinous lesions and tumors), lower limb, injuries to the trunk (pressure ulcers, myelomeningocele and osteomyelitis), there was a complication in 8%, compared to orthopedics, with 46.25% and neurosurgery with 24.6%. Regardless of surgical specialty, the authors identified hypotension with 22.8% of cases as an anesthesia-related complication, followed by vomiting and arrhythmias with 13.7% and perforation of the dura mater and laryngospasm with 6.3%.

Schwartzman et al., In 2011¹³, point out that the team of health professionals, composed of anesthetists and nurses, is of paramount importance for the realization of pre-anesthetic consultation in the context of patient safety in plastic surgery, “as it can reduce complications intra and postoperative periods and avoid unfavorable outcomes ”(p. 226).

Also, in this category, we can point out the study by Rezaeian et al. in 2013¹⁴, a German publication, which sought to develop, implement and evaluate a new concept of teaching and training in aesthetic plastic surgeries. Although this research was carried out with residents, a fact that will be discussed in another category of analysis, the central point is the training program carried out in 304 aesthetic surgeries of body, breast and facial contour. The responsible physicians used these surgeries to teach residents the best techniques and recorded cases where complications occurred as an indicator of patient safety. It emerged from the study that training was effective, considering that the incidence of complications from educational surgeries and those that did not compose the research sample, that is, that were not for teaching the residents, had practically the same percentage of complications, being 4.4% for elective surgeries and 4.9% for educational ones.

Transoperative period category

For this category, some articles dealt with issues related to the transoperative period, such as a checklist, surgical evolution, iatrogeny, adverse events, and communication.

Prates et al., in 2018¹⁵, demonstrate that the checklist can also be used to reduce rates of surgical infection. According to the authors, surgical infections are recognized worldwide as a serious public health problem because they are associated with high morbidity and mortality, increased length of stay, and hospital costs. They are one of the main targets of epidemiological surveillance in health institutions. In underdeveloped and developing countries, the authors claim that it can affect up to a third of patients undergoing surgical procedures. Monitoring and

implementing effective strategies to prevent them in health facilities have been stimulated and driven by worldwide movements for patient safety. Surgical site infections are, for the authors, preventable adverse events and markers of low quality of care, requiring efforts by health professionals and institutions to reduce them.

Also related to the checklist, the study by Sucupira et al., In 2016¹⁶, describes authors who recall in their work "Aesthetic Plastic Surgery Checklist: A Safety Tool" that about 10% of patients have iatrogenic events and that more than half of them occur in the perioperative environment. The research aimed to develop a complete and functional checklist for cosmetic plastic surgery and to test it in patients undergoing elective plastic surgery. It was developed a complete checklist to improve patient safety in cosmetic plastic surgery.

Although the authors marked the level of evidence in this study as IV, the results point to the use of data from 486 patients, 430 of whom were female, and 56 of whom were male, with the most commonly performed liposuction in 305 cases and anesthesia plus sedation. As for complications, the authors identified seromas with 7%, other complications not related to the wound with 3%, and the group that most adhered to the use of the checklist was the group of residents.

In the paper, it was demonstrated that the use of the checklist allows the collection of data and the identification of potential risks, promoted favorable changes in the attitudes of some professionals, and generated interest in patient safety and the team labor.

Another article that is classified in the category related to the transoperative period is the one that discusses the safety of the technique itself. Amorim et al., in 2012¹⁷, in their work on lipoabdominoplasty, demonstrates that surgical techniques undergo evolution over time, resulting in greater safety for the patient. The author demonstrates that the evolution of the technique has made lipoabdominoplasty a more elaborate surgery, enabling the achievement of good results by knowing the safety limits of the surgery.

A retrospective study was carried out using 162 medical records of patients who underwent lipoabdominoplasty over five years, and the results show a significant reduction in cutaneous-adipose tissue, with a significant decrease in abdominal flaccidity and an improvement in body contour.

The author reports that the safety of this procedure is modernly based on decreased detachment of the abdominal flap. On the other hand, it is undeniable the greater viability and safety of a less detached flap, which preserves its vascular and sensitive source. This safety for flap irrigation is described in studies

with Doppler, as shown by the authors. That is, the lipoabdominoplasty technique is a safe procedure, with a low rate of complications, as long as the safety criteria described by the authors are respected. This proceeding allows obtaining a well-vascularized flap, with preservation of perforating arteries. Amorim et al., In 2012¹⁷, stated that the postoperative complications found in the medical record review are low and meet the incidences reported in the literature.

Hernandes-Boussard et al., In 2015¹⁸, remember that adverse events are not rare, 3.7% of all hospital admissions experience an adverse event, and most of these events are considered preventable. In addition to the impact on the patient and his family, adverse events increase the use of hospital resources and the costs of hospitalization.

Given the wide-ranging impact of these events, there has been global prioritization in patient safety and associated hospital performance. The authors say that plastic surgery is a surgical discipline with its particularities, that there are essentially two groups of patients who need reconstructive plastic surgery: elective patients, who are generally young and healthy adults; and, complex patients, who need reconstructive surgery due to other conditions, such as the closure of exposed wounds, reconstruction after tumor removal or injury repair such as burns. It was observed in their work that patients undergoing reconstructive plastic surgery, in general, had lower rates of complications than other surgical specialties, but adverse effects were not uncommon. Over five years, a total of 16,635 patients experienced at least one potentially preventable adverse event during hospitalization. These events led to more than twice the patient's hospital stay time and increased hospital expenses.

Sidhoum et al., In 2016¹⁹, discuss, in their work, the relatively modern concern in patient safety that has been the use of social media such as Whatsapp. The author recalls that concerns such as the dissemination of data and images of patients that would be protected by medical confidentiality are considered, but the safety of this data in new media and mobile devices is questioned. Instant messaging can be used as a valuable tool to coordinate surgical teams or for simpler patient guidance. It is a valuable approach to simplify communication.

The authors present the experience and results of the plastic surgery team at Centro Hospitalar Universitário Amiens, using instant messaging as part of medical communication for almost three years. In terms of daily time spent writing messages, the statistics are quite favorable and show no detrimental time wasted with using WhatsApp. The use of this tool seems to keep the medical team in a continuous call

throughout the day, favoring the treatment of patients. Regarding the technical characteristics involving security in 2014, the Electronic Frontier Foundation, an independent American institution that defends civil liberties in the world, assessed the vulnerability of WhatsApp messages to measure their security by a complex analysis of their encryption. This institution concluded that WhatsApp has a good level of security and confidentiality, guaranteeing the security of the data and communications exchanged. A disadvantage would be the medical record. Undeniably, medical information shared through WhatsApp during the patient's hospitalization does not appear in his medical record. However, even so, instant messaging is an effective, inexpensive, and safe tool for professional communication. It does not seem to harm oral communication and brings better communication from the surgical team.

Tadisina et al., in 2015²⁰, raised another interesting question regarding patient safety in plastic surgery in the transoperative category. The authors question whether the procedures performed during the week would have any difference in terms of safety concerning those performed at the weekend. The authors point out that several studies demonstrate greater complications on weekends. This situation would be attributed to the lack of availability of personnel, services, and worse access to diagnostic tests. It can also be seen that the surgeon is without his usual team at the weekend. However, the authors remember that these studies do not take into account the particularities of plastic surgery patients, who are generally healthier. Even so, there are the factors mentioned that are independent of the health of the surgical patient, such as the decrease in hospital resources on weekends, including the team and access to diagnostic tests.

Besides, Tadisina et al., in 2015²⁰, reported that plastic surgeons often end up operating on weekends due to the lack of an operating room during the week, as these are used for emergency cases, which can result in more operative cases being performed on weekends. The authors were the first to investigate whether there is a relationship between patient safety and plastic surgery on weekends. They consider that although it seems to be negative, this subject needs further investigation.

Perioperative period category

This category was the one with the highest number of selected articles. It is believed that since many subjects are related to various times that involve surgery in its different aspects, this category covers most of the studies in this review.

It will begin with different investigations that inform the participation of residents in the surgical act, such as Kouloxouzidis et al. in 2014²¹, in their work, they performed 273 aesthetic procedures in 206 patients. They demonstrated that cosmetic surgery performed by plastic surgery residents, under the supervision of medical assistants is safe and provides high levels of postoperative patient satisfaction. Furthermore, offering these services can bridge the gap between providing training in high-quality cosmetic plastic surgery and, at the same time, allowing an increasing number of patients who can perform procedures less cheaply.

Similarly, in the article "The Impact of Resident Participation in Outpatient Plastic Surgical Procedures," Massenburg et al., in 2015²², observed all outpatient procedures performed by plastic surgeons between 2007 and 2012 in the database of the National Health Improvement Program American College of Surgeons Surgical Quality. The authors assessed the impact of residents' participation in the surgery of 6,227 patients and the results demonstrate that initially, the resident's presence may appear to increase the levels of complication, however, in conclusion, a more careful analysis shows that the levels of safety and complications are the same as those of more experienced surgeons. It is reiterated that this study has a level of evidence II.

Qureshi et al., in 2016²³, remember that plastic surgery procedures tend to be costly for patients. The authors, considering the American health care system, remember that services that have medical residency in general, imply less expensive procedures. They exemplify through patients that after bariatric surgery, they lose much weight. Health insurance only covers expenses for abdominal surgery, but these patients generally require other procedures such as brachioplasty or cruroplasty.

The authors report that surgery services where there is teaching, health institutions that are references in teaching, could enable these procedures to be performed with the same levels of complication and safety as clinics with trained surgeons at a lower cost to patients. In this study, the authors assessed the safety of procedures performed at a school clinic and statistically compared it with the results of national cosmetic surgery, concluding that in 175 cosmetic procedures, there was a general complication rate of 1.7%, compared with 2,0% for patients in the Cosmet Assure database.

When talking about event notification by residents, Parikh et al., 2017²⁴, demonstrated that an intervention using an online event notification system, developed by the head of the plastic surgery

department, in conjunction with Patient safety experts have led to significant improvements in the reporting of complications by plastic surgery residents at an academic hospital.

The proportion of complications reported in the pre-intervention group of the notification system was 28.1%; after the intervention, this increased significantly to 91.4% ($p < 0.001$). Therefore, the authors demonstrated that the implementation of this system could improve learning and safety in plastic surgery by improving reports of complications. Also, the authors point out that the involvement of residents in quality improvement initiatives is essential to train physicians for clinical practice in a complex health system.

Also, in this category, there is the issue of documentation that involves all surgical procedures. Within this context of medical documentation, Kittinger et al., 2016²⁵, proposed a project to improve the quality and safety of care performed at the Plastic Surgery Division of Scott & White Memorial Hospital. The main focus of the project involved improving the clinical documentation of inpatients. This interaction between doctors and specialists, in documentation in the health area, allowed the doctors to write down in the medical record all the diagnoses relevant to the treatments that were provided during hospitalizations. The plastic surgery service was able to improve its documentation and, in doing so, improved the recognition of the complexity of the patients it was treating. It has been shown that an effort to improve documentation has proved fruitful in terms of quality of care and cost management for the hospital.

To finalize this category, we can mention Swanson, in 2016²⁶, who cites thromboembolism as a feared complication in plastic surgery. The author reports that the procedures are associated several times, increasing the surgical time and the risk of thrombosis. The author also recalls that many doubts arise in the transposition of protocols idealized for surgeries of other specialties, without taking into account the particularities of plastic surgery. The author exemplifies with breast prosthesis surgery. The patients are at low risk because it is a quick surgery, usually performed on young and thin patients. This fact makes it seem that the opposite, overweight male patients in long surgeries, would have a higher risk, but the correlation, according to the author, is not necessarily true.

In 2016, Swanson²⁶ recalled that the pneumatic boot for intermittent compression of the lower limbs presents conflicting studies. Although it appears that it reduces the appearance of deep vein thrombosis (DVT) by up to 60%, it would

increase cases of pulmonary embolism by 12% with its use. Another question that the author raises would be related to the combined procedures. It seems that the combination of surgical times would increase the risk of thrombosis, however, if we consider the sum of the two surgical procedures performed individually, the author says that the patient would have a higher risk of thromboembolic events. Caprini's own score, widely used in risk stratification of surgical patients for thrombotic events, according to the author, is questionable, as it is an uncontrolled and randomized study with a 2C degree of recommendation. The author also points out that the clotting tests, Prothrombin Activation Time (PAT) and Thromboplastin Partial Activation Time (PTT), which are routinely ordered and do not diagnose various genetic disorders that interfere with coagulation.

CONCLUSION

In this systematic review, the countries that most published on the subject were the United States and Brazil. The most frequently encountered concern was safety related to the training of plastic surgery residents. Tools such as the checklist have also been used to improve security. Another concern that requires further studies would be whether the weekends present more significant complications in relation to surgeries performed during the week, precisely because there is a lack of evidence considering the particularities of plastic surgery patients. These particularities are also remembered in the prevention of thromboembolism, and further studies are recommended taking into account the particularities of patients in this specialty for the prevention of thromboembolism. However, it seems to have more solid foundations in patient safety, the well-formulated medical record, as well as the informed consent form. Pre-anesthetic consultation also seems to favor patient safety.

Moreover, finally, just as surgical procedures evolve towards better safety, so do new technologies, such as the use of WhatsApp. The use of this tool seems to be safe and seems to increase the attendance of the medical team by improving the team's communication.

It appears that, when studying these 15 articles, there is no way to identify a unique way to answer the research question: "What are the actions related to patient safety in plastic surgery?", Because the authors found in searches in databases, data pointed to varied needs and discussed different focuses of attention.

Evident is the importance of new and other more in-depth studies to achieve the subject of patient

safety in plastic surgery, in order to favor health care. It is essential to reinforce the patient's safe practice in any healthcare environment, to minimize risks and damage to the patient. It is considered that the few articles found explicitly on safety in plastic surgery may reveal that there is a lack of reflections in this regard. The various specificities of these patients must be considered, such as the fact that they are generally female, healthy, and young. Also, the specific considerations of the specialty, such as intolerance to any adverse effect precisely because of the profile of patients it treats. Therefore, it is essential to do more research on the subject to avoid disorders and promote better treatment of patients.

From a future perspective, it can be considered that the field of operation of plastic surgery and the assumptions of patient safety are certainly fertile fields, not only in health care but also in teaching. Professional training must be carried out in such a way as to enable the future doctor to develop unequivocal skills on the subject.

The subject of patient safety should be transversal to the undergraduate medical curriculum, allowing that, in specialization, the fundamental principles about safety are rooted in the professional, becoming a culture of safety.

The teaching of the theme would bring effectiveness to health actions, and this reflection could be brought up in educational institutions. For this researcher, it is reiterated that knowing the theme, identifying the low intellectual production, led to reconsider the attitude towards the daily performance in the act of teaching patient safety, not only in plastic surgery, but as an interdisciplinary theme.

COLLABORATIONS

OHMS	Analysis and/or data interpretation, Conception and design study, Conceptualization, Data Curation, Final manuscript approval, Investigation, Writing - Review & Editing
ERR	Final manuscript approval, Methodology, Supervision, Writing - Original Draft Preparation
JCM	Final manuscript approval, Writing - Original Draft Preparation, Writing - Review & Editing
ICMMC	Analysis and/or data interpretation, Conceptualization, Final manuscript approval, Methodology, Supervision, Writing - Review & Editing

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***Corresponding author:**

Elaine Rossi Ribeiro

Rua Carneiro Lobo, N° 333, Bairro Água Verde, Curitiba, PR, Brazil.

Zip Code 80240-240

E-mail: elaine.rossi@hotmail.com