Original Article

Surgical count process: evidence for patient safety

Processo de contagem cirúrgica: evidências para a segurança do paciente

Procedimiento de recuento quirúrgico: evidencias para la seguridad del paciente

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ABSTRACT

Objective: To analyze the surgical count process according to reports of nurses working in surgical centers of a city in the state of São Paulo.

Methods: Cross-sectional study with a sample of 55 nurses. Data collection occurred from August to December 2013, with application of an instrument submitted to face and content validation, composed of data on variables regarding characteristics of nurses, hospital, and surgical count process.

Results: Fifty-two (94.5%) nurses reported that the surgical count process was carried out in their workplaces. A statistically significant association was found between the surgical count process and the type of institution (P=0.046), and between the presence of a surgical technologist and the processes for counting surgical instruments (P<0.001) and sponges (P=0.016).

Conclusion: The results found contributed to understand how, by whom, and when the surgical count process was carried out in the studied hospital.

Keywords: Perioperative nursing. Patient safety. Nursing research.

RESUMO

Objetivo: Analisar o processo de contagem cirúrgica segundo relato de enfermeiros que atuam em unidades de centro cirúrgico de município do estado de São Paulo.

Métodos: Estudo transversal, com amostra de 55 enfermeiros. A coleta de dados ocorreu de agosto a dezembro de 2013, com aplicação de instrumento submetido à validade de face e conteúdo, composto de dados sobre variáveis relativas à caracterização do enfermeiro, hospital e processo de contagem cirúrgica.

Resultados: 52 (94,5%) enfermeiros responderam que o processo de contagem cirúrgica era realizado no seu local de trabalho. Houve associação estatisticamente significante do processo de contagem cirúrgica com o tipo de instituição (P=0,046), da presença do instrumentador com os processos de contagem de instrumentos cirúrgicos (P<0,001) e de compressas (P=0,016).

Conclusão: Os resultados evidenciados fornecem subsídios para a compreensão de como, por quem e quando o processo de contagem cirúrgica era realizado no contexto hospitalar.

Palavras-chave: Enfermagem perioperatória. Segurança do paciente. Pesquisa em enfermagem.

RESUMEN

Objetivo: Analizar el procedimiento de recuento quirúrgico según el relato de los enfermeros que trabajan en unidades de centros quirúrgicos de un municipio del estado de São Paulo.

Métodos: Estudio transversal con una muestra de 55 enfermeros. La recolección de datos ocurrió entre agosto y diciembre de 2013 con la aplicación de instrumento sometido a la validación de cara y contenido, compuesto de los datos sobre las variables relacionadas a la caracterización del enfermero, hospital y procedimiento de recuento quirúrgico.

Resultados: 52 (94,5%) enfermeros respondieron que el procedimiento de recuento quirúrgico se llevó a cabo en el lugar de trabajo. Se observó una asociación estadísticamente significativa del procedimiento de recuento quirúrgico con el tipo de institución (P=0,046); la presencia de matorral con los procedimientos de recuento de los instrumentos quirúrgicos (P <0,001) y de compresas (P=0,016).

Conclusión: Los resultados encontrados ayudan en la comprensión acerca de cómo, por quién y cuándo el procedimiento de recuento quirúrgico se llevó a cabo en el ámbito hospitalario.

Palabras clave: Enfermería perioperatoria. Seguridad del paciente. Investigación en enfermería.

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INTRODUCTION

The World Health Organization (WHO) created the World Alliance for Patient Safety in 2004, with the purpose of raising professional awareness and political commitment to improve safety in health care and support the development of public policies and induction of good care practices. In this context, the Second Global Patient Safety Challenge (2007-2008) stood out, with a focus on surgical safety and a campaign entitled Safe Surgery Saves Lives. In this campaign, among the ten objectives essential to ensure surgical safety, the prevention of inadvertent retention of sponges or instruments in surgical wounds stands out[1].

To ensure the prevention of retention of surgical items in the intraoperative period, the surgical count process (counting of surgical instruments, sponges, and sharps) is recommended in all surgeries[2]. Surgical counting is a manual process to count the materials used in the sterile field during surgeries, with the aim of preventing their inadvertent retention in patients. However, even when the final counting is recorded as correct, surgical items may be still retained unintentionally[3].

Evidence in the literature shows that perioperative nurses are responsible for the surgical count process and periodic reviews of its undertaking, including the use of adjuvant technologies with manual counting and appropriate staff sizing[2,4-5]. In a descriptive study, the authors asked perioperative nurses (n=3,137) for a list of priority topics for patient safety, and the ten topics most often reported, the prevention of retention of surgical items was in the second position, that is, 61% of the professionals identified this topic as high priority[6].

Currently, there are advances in the prevention of retention of surgical items; however, it is still an adverse event that occurs in operation rooms, causing physical, emotional, and financial damages for patients, in addition to increasing costs for healthcare services[7-8].

The retention of surgical items is associated with the performance of professionals involved in patient care in the intraoperative period. Therefore, the motivation for the development of the present study was based on the lack of identification of national studies in nursing on surgical count processes, considering the management of care as the role of nurses, and nursing teams as the main responsible for the undertaking of this practice. Based on this gap of knowledge and seeking to contribute with evidence that enables to understand the way this procedure is carried out in the Brazilian reality, the aim of the present study was to analyze the surgical count process according to reports of nurses.

METHODS

A cross-sectional study was conducted in 15 hospitals of a city in the state of São Paulo, enrolled in the National Register of Healthcare Facilities (CNES, as per its acronym in Portuguese), totaling 16 surgical centers (one hospital had two centers), extracted from the thesis entitled *Processo de contagem cirúrgica: evidências para a segurança do paciente no perioperatório* (Surgical count process: evidence for patient safety in the perioperative period)[9] presented to the Graduate Program in Fundamental Nursing of the Ribeirão Preto College of Nursing at the University of São Paulo. The target population of the study were nurses of both genders and the inclusion criterion was working in surgical centers of the hospitals selected, that is, both nurses working as coordinators/head of units and nurses working as aides/in charge nurses were included in the study. Nurses who were replacing other professionals in the surgical center due to their vacations and did not work in this sector were excluded.

Data were collected by means of the application of an instrument developed and submitted to face and content validation by five experts, namely three nurses who worked in surgical centers and two professors (nurses) who developed teaching and research activities in perioperative nursing. These professionals analyzed the instrument with regard to its presentation form and content produced, associating these elements with their capacity to achieve the objective proposed in the study. Suggestions of the experts were related to points associated with the instrument's content, inclusion of aspects such as the education of surgical technologists and its presentation form, for example, increasing spaces for open responses.

The instrument is divided into three parts: part I is composed of sociodemographic data associated with the identification of nurses, such as age, gender, marital status, year of graduation, and other data. Part II is associated with hospital data such as type of institution, number of beds and operating rooms, and other information. Part III is composed of information on how, when, and by whom counting types (surgical instruments, sponges, and sharps) are carried out in the surgical center.

Data collection was carried out within five months, from August to December 2013. The data collection instrument was delivered to nurses in three different ways according to their choice: a) delivery of the printed instrument for completion at the time of the meeting/visit, b) delivery of the printed instrument with a schedule to return it, and c) sending the data collection instrument to the participant's e-mail.

The data collected were stored in a Microsoft Excel® spreadsheet, doubly entered for checking of errors. After corrections, the data were transferred for statistical analysis in the Statistical Package for the Social Sciences 19 (SPSS) software.

The qualitative variables researched to characterize nurses were gender, marital status, and whether the professional had another employment relationship; variables associated with the hospital where the participants worked were the type of institution with regard to the maintenance entity, presence of surgical technologists in the surgical center, and whether they were from the surgical team. To analyze the surgical count process, the practice of this procedure and counting types (surgical instruments, sponges and sharps) were researched.

Absolute (n) and relative (%) frequencies were used for qualitative variables. Minimum, maximum, and median values were presented for quantitative variables (age, time of professional practice, and weekly working hours), which were tested regarding normality of their distribution by means of the Shapiro-Wilk test. Fisher's exact test or chi-square test was applied to identify whether the counting process and its respective counting types were associated with the type of institution and the presence of surgical technologists in the surgical center, adopting a significance level of $\alpha=0.05$.

The study was approved by the research ethics committee of the Ribeirão Preto College of Nursing at the University of São Paulo under protocol no. 278.717 and certificate of presentation for ethical consideration (CAAE, as per its acronym in Portuguese) no. 09762113.0.0000.5393.

After approval from the research ethics committee, the experts read and signed an informed consent form to initiate the process of face and content validation of the data collection instrument. After agreement of the participant institutions, the informed consent form was read and signed by nurses. In both cases (experts and nurses), the informed consent form was signed in two copies, and one was delivered to the participant. The participants were ensured confidentiality and anonymity, and were identified by numbers.

RESULTS

The population was made up of 63 nurses working in surgical centers of the hospitals selected for the study. However, in one hospital, six nurses refused to participate in the study, as well as two other nurses from another hospital institution. Therefore, the sample of the study was made up of 55 nurses.

The quantitative variables age (years), time of professional practice in the surgical center (months), and weekly working hours (hours) were submitted to the Shapiro-Wilk test and did not present normality. Therefore, age ranged from 24 to 61 years with median of 34 years; time of professional practice ranged from 1 to 456 months with median of 72 months, and weekly working hours in the surgical center ranged from 30 to 45 hours with median of 36 hours. Regarding qualitative variables, 49 nurses (89.1%) were women, 29 (52.7%) were married or in common-law marriage, 20 (36.4%) were single, and the others (10.9%) were divorced or widowers. In professional practice, 44 participants (80%) did not have another job.

Data on the surgical count process and the association researched between type of institution and presence of surgical technologists are presented in Table 1. Of the studied sample, 52 (94.5%) participants responded that the surgical count process was carried out in their workplace and three (5.5%) responded that this practice was not carried out in their workplace.

Regarding statistical treatment, the data presented in Table 1 showed a statistically significant association between the surgical count process and type of institution ($P=0.046$).

Data on type of surgical counting (counting of surgical instruments, sponges, and sharps) and association researched between the type of institution and presence of surgical technologists were presented in Table 2.

The results in Table 2 showed a statistically significant association between the presence of surgical technologists and counting processes of surgical instruments ($P<0.001$) and sponges ($P=0.016$).

The counting of surgical instruments was reported by 29 nurses (55.8%). Regarding how the process was carried out, seven participants (24.1%) responded that it was carried out at the end of the surgery; seven (24.1%) said it was carried out during the mounting of the box in the sterile processing department, with indication of the number of pieces on it, and at the end of the surgery, this number was checked; five nurses (17.2%) answered that it was carried out in the sterile processing department; four (13.8%) responded that it was carried out in the handling before and after the surgical procedure; two (6.9%) reported that it was carried out during the whole surgical procedure, and the remainder participants (n=4, 13.8%) indicated other ways.

The responses of nurses (n=29) on who carried out the counting of surgical instruments were: 13 participants (44.8%) responded that the counting was carried out by the circulating technician; seven (24.1%) reported

Table 1 – Distribution of nurses (n=55) according to data on the undertaking of the surgical count process associated with type of institution and presence of surgical technologists. Ribeirão Preto, São Paulo, Brazil, 2013

Variables	Surgical count process		P*
	Yes N=52 (94.5%)	No N=3 (5.5%)	
Type of institution	N (%)	N (%)	0.046
Public	30 (100)	0 (0)	
Private	14 (82.4)	3 (17.6)	
Philanthropic/Private/Public	8 (100)	0 (0)	
Presence of a surgical technologist			0.275
No	25 (89.3)	3(10.7)	
In some surgeries	18 (100)	0 (0.0)	
Yes	9 (100)	0 (0.0)	
Surgical technologist included in the team			1.000
Never	24 (96.0)	1 (4.0)	
Sometimes	14 (93.3)	1 (6.7)	
Always	14 (93.3)	1 (6.7)	

Fonte: Research data, 2013.
*Fisher's exact test

that it was carried out by the circulating technician and surgical technologist; four (13.8%) responded that it was carried out by the nursing technician/aide of the sterile processing department; two (6.9%) answered that it was carried out by the circulating technician and medical team, and three (10.3%) responded that it was carried out by other people (circulating technician, medical team, and other professionals).

Regarding the time (when) the counting of surgical instruments was carried out, most nurses (n=22, 75.8%) indicated that it was carried out at different times during surgery; however, it always ended after surgical synthesis, without a counting record before it.

The counting of sponges was reported by 45 nurses (86.5%). The form of undertaking the procedure ranged, and responses with higher frequencies were: 17 participants (37.7%) reported that the control of the number of open and discarded sponges was carried out (beginning and end of the surgery) and nine (20%) reported that the circulating technician opened the packages, asked surgical technologists or surgeon to check the number of open sponges on the surgical table, and then, noted on the board. As more sponges were requested, these were noted on the board, as well as the withdrawal of each one, and at the end of the surgery, the used sponges (discarded in the hamper) were checked.

Regarding who counted sponges, most nurses (n=26, 57.7%) responded the circulating technician; 20.0% (n=9) responded the circulating technician and surgical technologist, or surgeon; 13.3% (n=6) responded the circulating technician and surgical technologist, and 11.1% (n=5) responded the circulating technician and surgeon.

Most participants (n=31, 68.8%) reported that the counting of sponges was carried out at several times (when), but always ended before surgical synthesis; 20% (n=9) reported that the counting ended after surgical synthesis, without counting records before it; three nurses (6.6%) reported that it was carried out during surgery; two (4.4%) reported that it was carried out at the beginning of the surgery, and one (2.2%) reported that it was carried out at the beginning and during surgery.

The counting of sharps was reported by 25 nurses (48.1%). When questioned about how the procedure was carried out, 17 nurses (68%) responded when removing the material used from the table, comparing with what was supplied at the beginning and/or during surgery (open packages); two (8%) affirmed that each material was observed and tracked at the beginning, during, and after the surgical procedure; two (8%) responded during and after the surgical procedure; two (8%) reported that the counting of sharps was carried out verbally, and two (8%) reported different methods.

Table 2 – Distribution of nurses (n=55) according to data on type of surgical counting carried out in the hospital, associated with type of institution and presence of surgical technologists. Ribeirão Preto, São Paulo, Brazil, 2013

Variables	Counting of surgical instruments				Counting of sponges				Counting of sharps			
	Yes N=29 (%)	No N=23 (%)	N/A N=3 (%)	P	Yes N=45 (%)	No N=7 (%)	N/A N=3 (%)	P	Yes N=25 (%)	No N=27 (%)	N/A N=3 (%)	P
Type of institution				0.399*				0.546*				0.319*
Public	15 (50)	15 (50)	0 (0)		26 (86.7)	4 (13.3)	0 (0)		12 (40)	18 (60)	0 (0)	
Private	10 (58.8)	4 (23.6)	3 (17.6)		13 (76.5)	1 (5.9)	3 (17.6)		9 (52.9)	5 (29.5)	3 (17.6)	
Philanthropic/ Private/Public	4 (50)	4 (50)	0 (0)		6 (75)	2 (25)	0 (0)		4 (50)	4 (50)	0 (0)	
Presence of a surgical technologist				<0.001*				0.016*				0.171*
No	22 (78.6)	3 (10.7)	3 (10.7)		18 (64.3)	7 (25.0)	3 (10.7)		15 (53.6)	10 (35.7)	3 (10.7)	
In some surgeries	6 (33.3)	12 (66.7)	0 (0)		18 (100)	0 (0)	0 (0)		8 (44.4)	10 (55.6)	0 (0)	
Yes	1 (11.1)	8 (88.9)	0 (0)		9 (100)	0 (0)	0 (0)		2 (22.2)	7 (77.8)	0 (0)	
Surgical technologist included in the team				0.120*				0.319*				0.645**
Never	12 (48)	12 (48)	1 (4)		20 (80.0)	4 (16.0)	1 (4.0)		10 (40)	14 (56)	1 (4)	
Sometimes	6 (40)	8 (53.3)	1 (6.7)		14 (93.3)	0 (0.0)	1 (6.7)		7 (46.7)	7 (46.7)	1 (6.7)	
Always	11 (73.3)	3 (20)	1 (6.7)		11 (73.3)	3 (20)	1 (6.7)		8 (53.3)	6 (40)	1 (6.7)	

Research data, 2013.
N/A = not applicable (there is no surgical count process in the hospital)
*Fisher's exact text **Chi-square test

Most participants (n=22. 88%) reported that the counting of sharps was carried out by the circulating technician and three (12%) said that it was carried out by other professionals.

Regarding the time (when) the counting of sharps was carried out, most nurses (n=16.64%) responded that it ended after surgical synthesis; six (24%) answered that it was carried out before surgical synthesis; two participants (8%) mentioned that it was carried out at the beginning, during, and end of surgery, before and after surgical synthesis, and one (4%) responded that it was carried out only at the beginning of the surgery.

DISCUSSION

The results of the present study enabled to understand how, by whom, and when the surgical count process was carried out in the studied healthcare institutions, contributing to the knowledge about this practice in the Brazilian reality.

The WHO recommends, as a guideline for patient safety, the undertaking of the counting process in any surgery in which sponges, instruments, and sharps might be retained in patients, suggesting their checking by surgical teams, and emphasizes the main role of perioperative nurses in the prevention of retention of surgical items[1].

In the present study, 5.5% of the participants reported that the surgical count process was not carried out in the service they worked. According to the literature, this procedure must be carried out in every surgery, since the retention of surgical items may occur not only in surgeries of greater cavities, but also in abdominal surgeries[2,4,10].

For record of the surgical count process, forms must be used for written record, with appropriate forms for sponges, instruments, and sharps. The movement (in and out) of all items of the operatory field must be documented, without trusting memory, preventing the occurrence of errors of retention. The forms must be included in the patients' files, and the record of the counting process must be carried out by the circulating technician[1-2,11-13].

The literature recommends the standardization of the counting process, since this measure may contribute to the prevention of retention of surgical items[14-15]. In its traditional form (manual counting), this process is relatively cheap, and the standardization and implementation of a protocol for all surgeries may reduce costs[4]. However, the current organizational culture in operating rooms shows a range of procedures and customization of practices, strengthening the need for standardization[16]. It is worth mentioning that in the present study, the results showed a statistically significant association of the surgical count process with the type of institution, indicating that public hospitals stand out in the undertaking of this procedure.

In the present study, it was observed that nurses working in the same hospital reported the surgical count process differently, which shows the lack of protocol/standardization of this procedure in the healthcare service. In addition, investments are needed for implementation/standardization of the surgical count process, because this procedure is still carried out in a traditional form, with little use of adjuvant technology, since none of the nurses reported the use of scanning technology in the hospital where they worked.

Conversely, there was evidence indicating that multidisciplinary approaches and new technologies may help to reduce the frequency of retention of surgical items[17]. The use of scanning technologies (sponges with bar codes and sponges with radio frequency identification labels) is encouraged, being adopted as a complement for manual counting and seen as relevant investment to prevent the problem[18-20].

Regarding the counting of surgical instruments, 23 nurses (44.2%) reported that the procedure was not carried out in the surgical center where they worked. In the literature, there is indication of the need for counting all surgical items used in the sterile field. Instruments must be standardized and listed[1-2].

In the present study, responses of nurses with higher frequency indicated the circulating technician as the person who carried out the counting of surgical instruments, followed by the circulation technician and surgical technologist. This method corroborates what is recommended in the literature, that is, surgical teams must follow a standard for the undertaking of the procedure, including simultaneous manual counting by the surgical tech technologist and circulating technician[2]. It is worth noting that the results showed a statistically significant association between the presence of surgical technologists and the counting process of surgical instruments. This strengthens the need for investments of healthcare services in the hiring of surgical technologists, since the counting of surgical instruments was reported by 22 nurses with the absence of this professional.

Most nurses responded that the counting of surgical instruments was carried out at different times; however, it always ended after surgical synthesis, without counting records before surgical synthesis. These results differ from recommendations in the literature, that is, an initial counting must occur before the beginning of the surgical procedure, and interim counting may occur by protocol and at the surgical team's criterion. The closing counting (of agreement) must occur before and after surgical synthesis, checking the number of items recorded in the form with the number of items in the sterile field[2,15,20]. Therefore, it is strengthened that the process of counting surgical instruments must begin in the sterile processing department, with the use of standardized boxes, with the number of pieces that will effectively be used, and each instrument identified with an appropriate colored ribbon. Boxes of each surgical specialty must have specific colors, instruments must be listed in appropriate forms according to the order of their placing on the surgical table, and checked before the beginning of surgery by the surgical technologist and circulating technician[13,15-16].

Among the three surgical items researched in the present study, the counting of sponges was the procedure that was most often carried out in the operation room. It is worth mentioning that among the surgical items retained, sponges are the most common[8,20-21].

As already mentioned, most participants reported that the circulating technician was the person responsible for counting sponges, and that the procedure was carried out at different times, but always ended before surgical synthesis. This practice differs from the literature, in which the procedure is recommended to be carried out by the

surgical technologist and circulating technician. In addition, a counting before the beginning of the surgery is recommended, in case of additions to or withdrawals from the sterile field, and the procedure must be noted, both before and after surgical synthesis, checking the number of items recorded in the form with the number of items in the sterile field[2]. It is worth mentioning that the results of the present study showed a statistically significant association between the presence of surgical technologists and the counting process of sponges. This also strengthens the need for investments from healthcare services in the hiring of surgical technologists, since 18 nurses reported the counting of sponges without this professional.

Recommendations regarding the use of specific resources for the counting of sponges are found in the literature, such as the use of a white board in the operating room for records during the surgery, an appropriate and signalized place for counting and placing used sponges, and use of buckets and bags for the counting of this surgical item. Sponges must be radiopaque, preferably for laparotomy (big sponge), standardized by number in each package, checked before the beginning of the surgery by the surgical technologist and circulating technician, recorded in appropriate forms, as well as noted on the surgical room's board, for visualization of the whole team. Sponges to dry hands and those used by anesthesiologists must remain separate from sponges of the sterile field; however, neither can be taken from the operation room until the end of the surgery[2,11-13,15].

The counting of sharps was the procedure with the least report of undertaking in this study. Responses of most nurses in the present study on the form of undertaking this procedure differed from what is recommended, that is, the counting of needles must be carried out by the professional responsible at the time the package is opened and placed in an appropriate box, in the sterile field[1].

In spite of most participants having reported that the counting of sharps was carried out by the circulating technician, it is recommended that this procedure be carried out by the surgical technologist and circulating technician[2]. Most nurses also responded that the procedure was carried out after surgical synthesis, and only two participants reported that it was carried out at the beginning, during, and end of surgery, before and after surgical synthesis, which is the method recommended in the literature[2].

The use of boxes to count needles is recommended to help this procedure, which must be incorporated aiming at promoting a safe practice and reducing the number of this item on the surgical table. In addition, items added to the sterile field cannot be loose, and the use of appropriate boxes or containers is indicated for their placing[14-15].

The retention of surgical items is associated with the performance of professionals involved in patient care during the surgery[13]. Therefore, the implementation of measures necessary to ensure safety of surgical patients is responsibility of both healthcare professionals and healthcare services.

Nurses, while responsible for the management of the surgical center, are in charge of the standardization of the surgical count process, accomplishment of qualification for the nursing team and other professionals involved in patient care during the intraoperative period, as well as monitoring of this practice according to standards adopted. Hospitals must provide support so that the surgical counting process occurs appropriately, providing the necessary number of staff and purchase of support devices, as well as the implementation of adjuvant technologies to the manual counting process.

With regard to the limitations of the present study, the size of the sample and the development of the study in a single city may be inferred. However, it is worth mentioning that the city mentioned is a reference in the healthcare area and is located in the most developed state of the country. Data analysis was based on reports of nurses, and relevant aspects of the surgical count process might not have been considered.

CONCLUSION

The surgical count process is a relevant professional practice for patient safety. In the present study, the results shown enabled the achievement of the objective proposed, that is, to understand how, by whom, and when the surgical count process (surgical instruments, sponges, and sharps) was carried out in the healthcare institutions researched, contributing to the knowledge on this practice in the Brazilian reality.

The results of the present study show the need for investments for the standardization of surgical count processes, use of technologies to help manual counting, as well as the hiring of staff, especially surgical technologists, for the development of this practice according to recommendations suggested in the literature. The evidence found enables the development of further studies that will be able to propose the appropriate systematization of the procedure (creation or update of protocols) in healthcare services, with the implementation of interventions in clinical practice that may lead to the improvement of care quality and safety of surgical patients.

REFERENCES

1. World Health Organization (CH) WHO Guidelines for safe surgery 2009: safe surgery saves vives. Geneva: WHO; 2009 [cited 2009 Ago 13]. Available from: http://apps.who.int/iris/bitstream/10665/44185/1/9789241598552_eng.pdf.
2. Association of periOperative Registered Nurses (US). Guidelines for perioperative practice: 2015 edition. Denver: AORN; 2015.
3. Rowlands A. Risk factors associated with incorrect surgical counts. AORN J. 2012;96(3):272-84.
4. Norton EK, Martin C, Micheli AJ. Patients count on it: an initiative to reduce incorrect counts and prevent retained surgical items. AORN J. 2012;95(1):109-21.
5. Steelman VM, Graling PR. Top 10 patient safety issues: what more can we do? AORN J. 2013;97(6):679-98.
6. Steelman VM, Graling PR, Perkhounkoya Y. Priority patient safety issues identified by perioperative nurses. AORN J. 2013;97(4):402-18.
7. Stawicki SPA, Moffatt-Bruce SD, Ahmed HM, Anderson HL3rd, Balija TM, Bernescu I, et al. Retained surgical items: a problem yet to be solved. J Am Coll Surg. 2013;216(1):15-22.
8. Steelman VM, Schaapveld AG, Perkhounkova Y, Storm HE, Mathias M. The hidden costs of reconciling surgical sponge counts. AORN J. 2015;102(5):498-506.
9. Freitas PS. Processo de contagem cirúrgica: evidências para a segurança do paciente no perioperatório [tese]. Ribeirão Preto (SP): Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2014.
10. Norton EK, Micheli AJ, Gedney J, Felkerson TM. A nurse-led approach to developing and implementing a collaborative count policy. AORN J. 2012;95(2):222-7.
11. Chagolla BA, Gibbs VC, Keats JP, Pelletreau B. A system-wide retained vaginal sponges initiative to prevent retained vaginal sponges. MCN Am J Matern Child Nurs. 2011;36(5):312-7.
12. Lutgendorf MA, Schindler LL, Hill JB, Magann EF, O'Boyle JD. Implementation of a protocol to reduce occurrence of retained sponges after vaginal delivery. Mil Med. 2011;176(6):702-4.
13. Grazziano ES, Peniche ACG, Palazzo S. Retenção de objetos estranhos em sítio cirúrgico: ainda acontece? Rev SOBECC. 2011;16(3):30-4.
14. Chambers KL. Patient safety equals: aseptic technique, surgical conscience and time out. Surg Technol. 2013;45(3):108-19.
15. Edel EM. Surgical count practice variability and the potential for retained surgical items. AORN J. 2012;95(2):228-38.
16. Gibbs V. Interview with a quality leader: Dr. Verna Gibbs on surgical safety. Interview by Susan V. White. J Healthc Qual. 2012;34(6):21-6.
17. Coleman J, Wolfgang CL. Necessity of a good surgical history: detection of a gossypiboma. J Nurse Pract. 2013;9(5):277-82.
18. Ellner SJ, Joyner PW. Information technologies and patient safety. Surg Clin North Am. 2012;92(1):79-87.
19. Williams TL, Tung DK, Steelman VM, Chang PK, Szekendi MK. Retained surgical sponges: findings from incident reports and a cost-benefit analysis of radiofrequency technology. J Am Coll Surg. 2014;219(3):354-64.
20. Freitas PS, Silveira RCCP, Clark AM, Galvão CM. Surgical count process for prevention of retained surgical items: an integrative review. J Clin Nurs. 2016; 25(13/14):1835-47.
21. Steelman VM, Alasagheirin MH. Assessment of radiofrequency device sensitivity for the detection of retained surgical sponges in patients with morbid obesity. Arch Surg. 2012;147(10):955-60.

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