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SURVEILLANCE AFTER DISCHARGE IN GENERAL SURGERY: SYSTEMATIC NURSING CARE AS A TOOL IN INFECTION CONTROL

VIGILÂNCIA PÓS-ALTA EM CIRURGIA GERAL: ASSISTÊNCIA DE ENFERMAGEM SISTEMATIZADA COMO FERRAMENTA NO CONTROLE DE INFECÇÕES

VIGILANCIA DESPUÉS DE ALTA EN CIRUGÍA GENERAL: ASISTENCIA DE ENFERMERÍA SISTEMÁTICA COMO HERRAMIENTA EN EL CONTROL DE LA INFECCIÓN

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ABSTRACT

Objectives: describing the behavior of surgical site infection in patients undergoing general surgery and propose a protocol of perioperative nursing care. ***Method:*** a descriptive cross-sectional study, in which were analyzed 96 patients undergoing general surgery and attended in an outpatient clinic of graduates of a university hospital in Recife-Pernambuco. For data collection, a form was used. The program Epi Info 3.5 was used for descriptive statistical analysis. The study was approved by the Research Ethics Committee, Protocol n.101/11. ***Results:*** the majority were aged between 40-49 years old, female (62,5%). The prevalence of surgical site infection was of 6,3%, with a predominance of superficial infections. There was no information on nursing guidelines in the postoperative period in 89,7% of records. ***Conclusion:*** the data showed divergences in the conduct of nursing in the perioperative period. ***Descriptors:*** Nursing; Hospital Infection; Nursing Care.

RESUMO

***Objetivos*:** descrever o comportamento da infecção de sítio cirúrgico em pacientes submetidos à cirurgia geral e propor um protocolo de assistência de enfermagem perioperatória. ***Método*:** estudo transversal descritivo, no qual foram analisados 96 pacientes submetidos à cirurgia geral e atendidos no ambulatório de egressos de um hospital universitário de Recife-PE. Para a coleta de dados foi utilizado um formulário. O programa Epi Info 3.5 foi utilizado para análise estatística descritiva. O estudo foi aprovado pelo Comitê de Ética e Pesquisa, Protocolo n. 101/11. ***Resultados*:** houve predominância da faixa etária de 40 a 49 anos, do sexo feminino (62,5%). A prevalência de infecção de sítio cirúrgico foi de 6,3%, com predomínio de infecções superficiais. Não houve informação sobre orientações de enfermagem no período pós-operatório em 89,7% dos prontuários. ***Conclusão*:** os dados demonstraram divergências na conduta de enfermagem no período perioperatório. ***Descritores*:** Enfermagem; Infecção Hospitalar; Cuidados de Enfermagem.

RESUMEN

Objetivos: describir el comportamiento de la infección del sitio quirúrgico en pacientes sometidos a cirugía general y proponer un protocolo de atención de enfermería perioperatória. ***Método:*** un estudio descriptivo y transversal, en el que se analizaron 96 pacientes sometidos a cirugía general y consulta externa de los graduados de un hospital universitario de Recife-Pernambuco. Para la recolección de datos se utilizó un formulario. El programa Epi Info 3.5 fue utilizado para el análisis estadístico descriptivo. El estudio fue aprobado por el Comité de Ética E investigación, el Protocolo de n. 101/11. ***Resultados:*** la mayoría fue de 40-49 años de edad, sexo femenino (62,5%). La prevalencia de la infección del sitio quirúrgico fue de 6,3%, con un predominio de infecciones superficiales. No hubo información sobre las directrices de enfermería en el periodo postoperatorio en el 89,7% de los registros. ***Conclusión:*** los datos mostraron diferencias en la conducta de enfermería en el periodo perioperatório. ***Descriptores:*** Enfermería; Infección Hospitalaria; Cuidados de Enfermería.

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INTRODUCTION

Despite the great technological advances and an increase in the number of qualifying actions for the control of infection in health care facilities, care-associated infections Health (IRAS) still represent one of the biggest challenges in healthcare.[1,2]

The surgical site infection (SSI) is noteworthy for being responsible and requires a high number of cases of IRAS[3] generating complications of great impact for the patient, as well as prolongingtheir hospital stay.[1]

According to the Center for Disease Control and Prevention (CDC), the ISCsare responsible for 17% of all infections in health care in the world. In Brazil, represent the third leading cause of HAIs in the country and has an average percentage of 14-16% among infections in hospitalized patients, with an incidence rate of up to 11%.[3-5]

The State of Pernambuco, even with all the efforts of Services for Control of Hospital Infection, shows increasing rates of infection in patients undergoing general surgery and the surgical wound infections accounted for 7,7% of all IRAS.[6]

It is being understood that surveillance is an effective infection control program that is directly linked with reduced rates of SSI, the CDC proposed the National Nosocomial Infection Surveillance System (NNISS), aiming to standardize the methods of surveillance allowing[7] data comparison of these infections between different health institutions.[2]

The methodology NNISS is a method of daily active surveillance that provides knowledge of the index of Infections in Hospitals, involved sites, pathogens and antibiotic resistant, besides the occurrence of outbreaks.[2]

The search for cases of SSI after discharge is necessary in order to avoid underreporting of the actual number of these infections and possible increase in morbidity and mortality[8], as well as providing prevention and control from epidemiological understanding. The outpatient egressed is the most effective method for providing accuracy of this information and minimize underreporting of these cases.[3]

From this tool, nursing professionals can monitor and implement perioperative care that cause impacts on clinical practice and result in greater control of infections.[9,10] In this context, we highlight the importance of planning hospital discharge, through the provision of information to promote self-care, reducing the number of readmissions, and maximizing the early identification of these infections in order to more effective interventions and hence get better results.[10-1]Such results may help the service control program preventive measures this institution, and contribute to adapting strategies of health services .

OBJECTIVES

- Describing the behavior of operative infections in patients undergoing general surgery
- Proposing a protocol for the perioperative nursing care.

METHOD

Article compiled from the monograph << Risk Factors for Surgical Site Infection in a University Hospital in Recife-PE >> submitted to the Center for Nursing, Federal University of Pernambuco-Academic Center of Vitoria de Santo Antão-PE, Brazil, 2012.

A cross-sectional descriptive study, prospective with a quantitative approach performed in outpatient egressed of a university hospital in Recife-PE, in the period October-December 2011.

The population consisted of all patients of both sexes and older than 18 years old; undergoing general surgery during the study period. The non-probability sample comprised 96 patients who were treated at this facility, after being taken into consideration the following criteria: (Figure 1):

1 - Thirty-day of postoperative general surgery;
2 - Over 18 years old;
3 - Both sexes with or without a previous history of ISC;
4 –Those who agreed to participate by signing the Instrument of Consent.

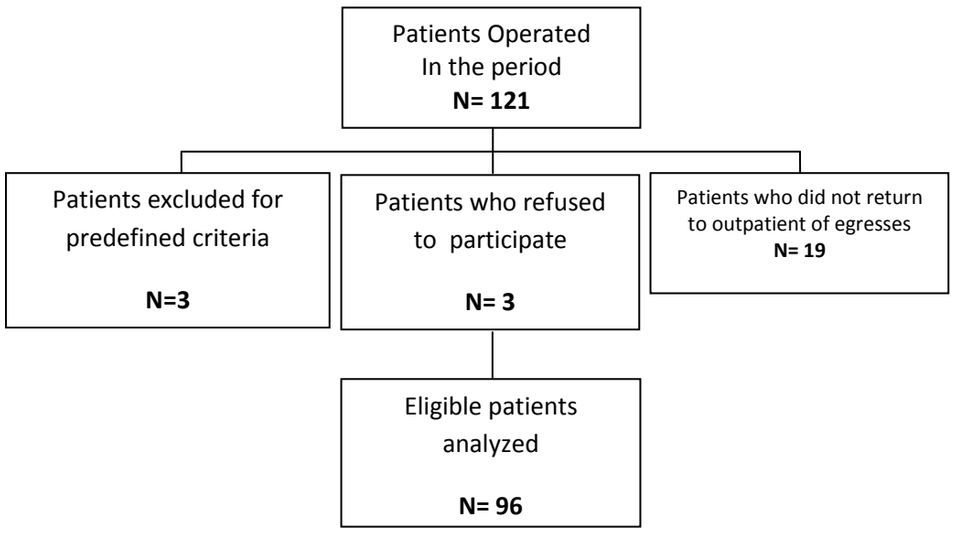

Figure 1. Flow chart of patient enrollment directed.

The data were collected through a form containing socio-demographic, clinical and related to nursing care with the help of infection control records obtained by a system of active surveillance of infection carried by nursing CCIH and epidemiological surveillance system information follow-up after hospital discharge.

Initially came into contact with the head of the clinic whose purpose was to obtain permission to conduct the survey. Then the researchers followed the following steps: 1) Contact with patients undergoing general surgery during the study period, 2) Explanation of the objectives and procedures of the study, 3) After obtaining the permission of the property, the project release research by the Center for Health Sciences, UFPE and accepted patients, the Research Ethics Committee (REC) research was initiated with application of the research instrument.

The second stage of the study after signed the consent form was performed. The instrument developed for data collection in the postoperative period, in the form of interview form the type checklist is grounded in the guidelines from the Centers for Disease Control[7]in relation to postoperative care to surgical incision and method epidemiological surveillance for identifying SSIs classified as superficial, deep and organ/space infection.

This instrument assessed the surgical wound as a primary source of information, considering items such as presence of pain or local hypersensitivity, localized edema, erythema, local heat, dehiscence and purulent exudate over the scar.

Cases of SSI were diagnosed by the surgeon, physician assistant, through clinical history and complementary tests. The presence of pus was the criterion used to classify the wound as infected.[6]

At the end of the study, was proposed a protocol-specific perioperative nursing care for these surgical patients directed to the control and prevention of SSI.

For data analysis was used the Epi Info program, version 3.5 and organized into tables. The descriptive statistical analysis allowed using the Chi-square (x^2) test and Fisher's exact test comparing proportions to determine the value of "p" at a significance level of 5%.

The research was conducted within the standards required by Resolution 196/96 of the National Committee of Ethics in Research - CONEP[12] the project was approved by the Research Ethics Committee (REC) of the Federal University of Pernambuco - Center for Health Sciences, under protocol 101/11.

RESULTS

During the study period, 121 patients were operated, of these, 96 were eligible, considering a sample loss of 25 patients were excluded for not meeting the inclusion criteria (3 patients), refusal to participate (3 patients) or for failing to appear for the query return to the ambulatory surgical graduates of general surgery of the institution (19 patients), as described in flowchart directed registration of the patient (Figure 1).

The data presented in Table 1 comprise information on which features are observed on the socio-demographic variable. The majority were aged 40-49 and females (62,5%). With respect to socioeconomic aspects, the occupations were diverse, especially domestic (27,1%), retired (18,8%) followed by farmers (10,4%). As for education, approximately 14.6 % of the patients were illiterate. Seventy-four patients (77,1%) lived with family income 1-3 minimum wages.

Table 1. Socio-demographic aspects of 96 patients undergoing general surgery at the Hospital das Clínicas in Recife, during the period from October to December 2011.

Variables	N	%
Age		
18 to 20 years old	1	1,0
21 to 29	10	10,4
30 to 39	19	19,8
40 to 49	27	28,1
50 to 59	14	14,6
60 to 70	14	14,6
Over 71 years old	11	11,5
Total	**96**	**100,0**
Gender		
Male	36	37,5
Female	60	62,5
Total	**96**	**100,0**
Occupation		
Domestic	26	27,1
Retired	18	18,8
Farmer	10	10,4
Merchant	05	5,2
Other	37	38,5
Total	**96**	**100,0**
Schooling		
Zero years old	14	14,6
1 to 3	03	3,1
4	09	9,4
5 to 8	26	27,1
9	15	15,6
10 to 12	20	20,8
>12 years old	09	9,4
Total	**96**	**100,0**
Family income		
<than 1 minimum wage	05	5,2
from 1 to 3 minimum wages	74	77,1
>than 4 minimum wages	15	15,6
Don't know inform	02	2,1
Total	**96**	**100,0**

Source: Hospital das Clínicas, Pernambuco, 2012.

All general surgeries were elective, the average procedure time was ± 2 hours, ranging from one to eight hours, and the mean preoperative hospitalization was ± 3 days, ranging from one to eight days. The most common surgical procedures were cholecystectomy (22,9%), hernia repair (20,8%) and gastric (18,8%). Regarding the Potential Contamination was predominantly potentially contaminated surgeries (67,7%). Regarding risk factors for SSI, about 14 % of patients were affected by cancer, 18.8% were diabetic, whereas 36.5 % and 28.1 % drank alcohol and smoked tobacco, respectively (Table 2).

Also in Table 2, is described rankings Risk II ASA (American Society of Anesthesiology) which was present in 32 patients (33,3%) and 13 cases had risk ASA III (13,5%). Regarding shaving, 16 held (16,7%) and in most cases we used the blade for the procedure. All patients reported having performed the preoperative suite and most underwent antibiotic prophylaxis (95,8%), as recommended by the CDC protocol.

Table 2. Risk factors identified in 96 patients undergoing general surgery at the Hospital das Clínicas in Recife, during the period from October to December 2011.

Variables	n	%
Specialty		
Cholecystectomy	22	22,9
Hernioplasty	20	20,8
Hemicolectomy	03	3,1
Gastrectomy	08	8,3
Gastroplasty	18	18,8
Other	25	26
Total	**96**	**100,0**
Diabetes		
Yes	18	18,8
No	78	81,2
Total	**96**	**100,0**
Neoplasms		
Yes	14	14,6
No	82	85,4
Total	**96**	**100,0**
Alcoholism		
Yes	35	36,5
No	61	63,5
Total	**96**	**100,0**
Smoking		
Yes	27	28,1
No	69	78,9
Total	**96**	**100,0**
ASA Risk		
Level I	28	29,2
Level II	32	33,3
Level III	13	13,5
No information	23	24,0
Total	**96**	100,0
Trichotomy		
<24h	16	16,7
>24h	00	00
Not held	75	78,1
Don't know inform	5	5,2
Total	**96**	**100,0**
Antibiotic prophylaxis		
Yes	92	95,8
No	00	00
Don't know inform	4	4,2
Total	**96**	**100,0**

Source: Hospital das Clínicas, PE, 2012.

Regarding postoperative clinical aspects and possible predictors of SSI, 40 patients (41,7%) used drains and indwelling catheters, 02 (2,1%) tested positive for urine cultures and 12 (12,5%) had coughing. Regarding the presence of signs of inflammation in the surgical wound, about 37,5% of the cases showed redness, 40 (41,7%) pain, 27 (28,1%) heat, 16 (16,7%) and 22 local edema (22,8%) local sensitivity. Fever was present in 04 patients (4,2%). (Table 3)

The prevalence of SSI was 6,3%, with a predominance of superficial infections (83,3%). It is noteworthy that in 2% of cases there was spontaneous wound dehiscence. All these infections were treated according to institutional protocol (Table 3).

Table 3. Clinical aspects of 96 patients undergoing general surgery at the Hospital das Clínicas in Recife, during the period from October to December 2011.

Variables	n	%
SVD or drains		
Yes	40	41,7
No	56	58,3
Don't know inform	00	00
Total	**96**	**100,0**
Complaint of cough		
Yes	12	12,5
No	84	87,5
Don't know inform	00	00
Total	**96**	**100,0**
Redness		
Yes	36	37,5
No	60	62,5
Total	96	100,0
Local Edema		
Yes	16	16,7
No	80	83,3
Total	**96**	**100,0**
Local Sensitivity		
Yes	22	22,9
No	74	77,1
Total	**96**	**100,0**
Fever		
Yes	4	4,2
No	92	95,8
Total	**96**	**100,0**
ISC		
Yes	06	6,3
No	90	93,7
Total	**96**	**100,0**
Nursing guidelines in relation to the ISC		
Yes	12	12,5
No	84	87,5
Total	**96**	**100**
Nursing guidelines for wound care		
Yes	23	23,5
No	73	76,5
Total	**96**	**100**

Source: Hospital das Clínicas, PE, 2012.

The study calls attention to the fact that most of the patients reported having received no nursing guidelines regarding SSI and especially in relation to wound care (89,7%). However, it is noted that the applicable procedures dressings were performed on all surgical wounds (Table 3).

A univariate analysis of clinical and socio-demographic factors associated with the ISC is presented in table 4. The use of indwelling catheters or drains and the presence of pain configured not predictive factors for SSI in these patients (p=0,04, RP=7; IC= [0,85-57,6]). Moreover, patients who had fever were 23 times more likely to have ISC (p=0,00; RP=23; IC= [6,6-80,1]. In addition, gender was not significantly associated with cases of SSI in this study (p = 0,40) nor the egress of these patients to the outpatient clinics of post-hospital discharge (p = 0,57), as shown in Table 4 follow-up.

Table 4. Association between clinical and socio-demographic factors and ISC in 96 patients undergoing general surgery at the Hospital das Clínicas in Recife, during the period from October to December 2011.

Variables	ISC						
	Yes		No		Total	P value*	† RP(IC 95%)
	n	%	n	%			
SVD or drains							
Yes	5	83,3	35	38,8	40	0,04	7(0,85-57,6)
No	1	16,7	55	61,2	56		
Total	**6**	**100**	**90**	**100**	**96**		
Fever							
Yes	3	50	1	98,8	4	0,00	23(6,6-80,1)
No	3	50	89	1,2	92		
Total	**6**	**100**	**90**		**96**		
Pain							
Yes	5	83,3	35	38,8	40	0,04	7(0,85-57,6)
No	1	16,7	55	61,2	59		
Total	**6**	100	**90**	**100**	**96**		
Gender							
Male	3	50	33	36,6	36	0,40	
Female	3	50	57	63,4	60		
Total	**6**	**100**	**90**	**100**	**96**		
Return query							
Yes	4	66,6	55	61,1	59	0,57	
No	2	33,4	35	38,9	37		
Total	**6**	**100**	**90**	**100**	**96**		

* Significant association at 5% level.† Ratio of Prevalence # Test Chi-square (x^2).
Source: Hospital das Clínicas, PE, 2012.

DISCUSSION

The surgical site infection is the main hospital infection that affects patients who underwent surgery. This is an inherent complication of the procedure and results in increased hospital costs and emotional and physical discomfort for the patient and his family.[13]

The World Health Organization (WHO) estimates [14] that approximately seven million people a year suffer with some type of surgical complications, among which at least one million deaths will.

With the aim of raising standards of quality and safety in the delivery of surgical services and thus reduce the disastrous figures in global health, the World Alliance for Patient Safety, launched in 2004, proposed the Second Global Challenge for patient safety: safe surgery saves lives.[14]

The WHO also established the goal of reducing the ISC by 25% by the year 2020.[14] In Pernambuco, the previous study had identified a prevalence of 11% of wound infections in general surgery at the same institution of target current study identified the rate of 6,3% of ISC in the same type of surgery, which shows an apparent reduction in the rate of infection in this institution.[6]Is possible that this reduction is a reflection of the implementation of such a protocol proposed by the WHO. But it cannot ratify this reduction in the prevalence of ISC, considering possible underreported cases, even though the service egress present a considerable accession of return of these patients to surgical evaluation in the postoperative period (84,3%).

This study draws attention to the fact that patients reported that no information obtained by the nursing staff on the surgical site infection (87,5 %) and wound care. Becomes apparent fragility in the planning of nursing care for these patients that could possibly contribute to the current rate of ISC found that still remains high, whereas less than 5% levels as recommended by WHO for this type of IRAS.[14]

In a study conducted in Recife-PE, it was found that over 60% of the patients also were not instructed as to bathing, general, ambulation and curative care after hospital discharge.[15] The study elucidates data concerning the deficiencies in providing servicespost discharge by nursing staff for surgical patients. Perhaps improper sizing, lack of professional training and no protocols that require and facilitate compliance of this service, which is already part of the duties of nursing justify this weakness in the discharge of the patient, however for such a claim to a specific study is necessary address this issue.

It is believed with the implementation of a plan of hospital nursing care becomes more humane, efficient and welcoming[9-16], in addition to increasing the number of treatment adherence after discharge of the patient, thereby reducing the number of possible rehospitilizations.[9]Itis known that surgical complications can be associated with an inadequate preoperative preparation[17] and so it is critical that this plan is embedded in a high systematization of perioperative nursing care.

The following suggests a Protocol of nursing care in perioperative period directed to general surgery, aiming to contribute to

improvements in the quality and efficiency of care provided to these surgical patients, basing on the principles of patient safety as recommended by WHO. This instrument shall include the following sections and their subdivisions:[15-17]

1. **Patient Evaluation:**

1.1 Data of patient identification: involves socioeconomic-cultural patient information and data relating to the etiology of injuries;

1.2 Complaints: investigate the presence of epigastric discomfort like fullness, bloating, nausea, vomiting, pain, fever;

1.3 Associated diseases: investigating history of diabetes, obesity, hypertension, cancers;

2. **Standards and practices for perioperative nursing care in general surgery:**

2.1 Nursing interventions preoperatively

- ✓ Check fasting for 8 to 12 hours;
- ✓ Provide guidance as to the minimum time of preoperative hospitalization;
- ✓ Investigate allergies and related disorders;
- ✓ Perform trichotomy reduced to two hours before surgery (if necessary);
- ✓ Remove dentures;
- ✓ Explain the surgical procedure;
- ✓ Provide guidance as to general anesthesia;
- ✓ Assess presence of epigastric discomfort, such as fullness, bloating, nausea, vomiting, pain, fever;
- ✓ Assess health problems, infections, heart disease, diabetes, chronic hypertension, pulmonary disease, adjusting therapy to avoid surgical risks;
- ✓ Prepare the patient emotionally and physically for surgery, explaining how to position the bed, exercises and activities planned for the postoperative period, frequent assessments of the wound and prevent complications;
- ✓ Check preoperative examinations;
- ✓ Provide guidance on the use of the pain scale.

2.1 Nursing interventions postoperatively

- ✓ Assist in ambulation of the patient, especially in the 1st time, after recovering from the anesthetic effects;
- ✓ Monitor the output and the drain of the indwelling catheter within 24 hours of surgery former, where the patient makes use;
- ✓ Assess the wound;
- ✓ Paying attention to the signs of surgical site infection, especially the presence of fever;
- ✓ Keep a bandage to 24/48 hours
- ✓ Observe presence of pain, hematoma, hypotension, tachycardia and fever;
- ✓ Encourage the patient to cough, as well as diaphragmatic breathing;
- ✓ Direct and monitor the patient regarding diet.
- ✓ Epidemiological surveillance;

2.2 Educational measures after discharge

- ✓ Provide written and verbal patient and caregiver instructions;
- ✓ To emphasize the need to keep the wound clean and dry operative;
- ✓ After removal of sutures, the patient to remember that, although appears healed wound, it may still be painful and continue to heal and become stronger during several weeks;
- ✓ Instruct the patient to keep clean the suture line, do not rub vigorously; palpating dry after bathing. Perform teaching about the appearance of the wound at this stage. Remind the patient that the edges of the wound may still be slightly red and raised;
- ✓ Recommend that the patient informs the doctor any swelling, redness, pain on palpation or excessive thickening of the scar that persists beyond 8 weeks;
- ✓ Provide advice on personal hygiene;
- ✓ Advise on nutrition;
- ✓ Rambling as limit;
- ✓ Advise on complaints of nausea, vomiting, dizziness, fever and aches;
- ✓ Take analgesic for pain, according to medical prescriptions;
- ✓ Explain about the return visit for stitch removal 15 days after surgery as medical advice.

3. **Evolution in nursing postoperatively are expected to be registered information about:**

- ✓ Patient without edema, redness and purulent drainage Drain and wound;
- ✓ Exchange dressing according to hospital routine;
- ✓ Detailed Record inflammatory signs, spontaneous dehiscence, and openingup points by the surgeon in cases of surgical site infection.

Proper recording information in medical records provides a guidance related to clinical evaluation of the patient in the postoperative period of the surgery. Evolution is essential in evaluation through review, to ensure that the wound is healing and no signs indicative of inflammation or infection.[15]

CONCLUSION

The signs and symptoms of surgical site infection after hospital discharge in general surgery, as evidenced in this study were redness (37,5%), edema (16,7%), pain (83,3%), dehiscence (2%) and fever (4,2%). We identified 6.3% of surgical site infection on the thirtieth day after discharge, this rate being considered borderline between the parameters recommended by the Centers for Disease Control.

Identification of the signs and symptoms of surgical site infection by ambulatory visits of graduates allows nurses to perform proactive actions to solve the problems identified. This time, it was stressed the need to implement a method for monitoring post-discharge that enables an absolute notification of ISC, minimizing underreported indices that can cause a high rate of morbidity and mortality.

Despite some limitations of this study as it was conducted in only one hospital and a sample is considered reasonable, these results reflect the importance of monitoring the ISC post-hospital general surgery, since a considerable number of these infections is manifested outside the hospital. Furthermore, the results of this study show the need to implement actions in health education, particularly in planning hospital discharge, directed by nursing professionals to patients and their caregivers in order to make them fit and able to perform the necessary care and Essential after surgery.

The study enabled the realization of a proposed protocol for the nursing care that can contribute for improving the quality and delivery of nursing services offered by the institution, benefiting the patient, hospital and education workers, who will have the chance to develop skills and correlate learning. For such practice is necessary to motivate and train professionals for health education, promoting multidisciplinary teamwork, review the sizing of staff and ensure that the procedures that are complementary to the routine nursing, guided from a protocol assistance and review the sizing of staff.

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