



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

ORIGINAL ARTICLE

RATE OF SURGICAL SITE INFECTION IN MOTHERHOOD: THE IMPACT OF SEARCH POST MEDICAL DISCHARGE

TAXA DE INFECÇÃO DO SÍTIO CIRÚRGICO NA MATERNIDADE: O IMPACTO DA BUSCA PÓS-ALTA

TASA DE INFECCIÓN DEL SITIO QUIRÚRGICO EN LA MATERNIDAD: EL IMPACTO DE LA BÚSQUEDA DE POST-ALTA MÉDICA

Cássio de Almeida Lima¹, Camila Froes Souto², Renata Patrícia Fonseca Gonçalves³, Marcelo Rocha Torres⁴

ABSTRACT

Objective: identifying the impact of post-medical discharge search rate of SSI related to cesarean section in a teaching hospital on the SSI rates obtained by the Office of Infection Control (HICS). **Methods:** an observational, prospective cohort study. It was performed a phoned search after discharge of 72 patients undergoing cesarean section during four months. The data were processed using the Epi Info software, version 3.5.3 and presented in a figure and two tables. The research project was approved by the Research Ethics Committee, Protocol 2244/2011. **Results:** most patients had no underlying disease; had normal weight, being classified as ASA 1; stayed hospitalized for 3-6 days and had surgery lasting less than or equal to 70 minutes. There was no statistically significant association between the risk factors for the development of infection in groups with or without this factor. **Conclusion:** with postdischarge search, the rate of SSI after cesarean section increased by up to four times. The phoned search was a good applicability method. **Descriptors:** Cesarean section; Surgical Wound Infection; Epidemiological Surveillance.

RESUMO

Objetivo: identificar o impacto da busca pós-alta na taxa de ISC relacionada à cesariana em um hospital universitário sobre as taxas de ISC obtidas pelo Serviço de Controle de Infecção Hospitalar (SCIH). **Método:** estudo observacional, de coorte prospectiva. Realizou-se a busca fonada após a alta de 72 pacientes submetidas à cesariana durante quatro meses. Os dados foram processados no programa Epiinfo, versão 3.5.3 e apresentados em uma figura e duas tabelas. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, Protocolo 2244/2011. **Resultados:** a maioria das pacientes não possuía doença de base; tinha o peso normal, sendo classificada como ASA 1; permaneceu internada por 3 a 6 dias e teve a cirurgia com duração igual ou menor do que 70 minutos. Não houve associação estatística significativa entre os fatores de risco para o desenvolvimento de infecção nos grupos com ou sem o fator presente. **Conclusão:** com a busca pós-alta, a taxa de ISC pós-cesárea aumentou em até quatro vezes. A busca fonada foi um método de boa aplicabilidade. **Descritores:** Cesárea; Infecção da Ferida Operatória; Vigilância Epidemiológica.

RESUMEN

Objetivo: identificar los efectos de la búsqueda post-alta en la tasa de ISQ relacionada con la cesárea en un hospital de enseñanza acerca de las tasas de ISQ obtenidas por la Oficina de Control de Infecciones (HICS). **Métodos:** estudio observacional, prospectivo de cohortes. Se realizó la búsqueda fonada después del alta de 72 pacientes sometidos a cesárea durante cuatro meses. Los datos fueron procesados con el software EpiInfo, versión 3.5.3 y se presenta en una figura y dos tablas. El proyecto de investigación fue aprobado por el Comité de Ética de la Investigación, Protocolo 2244/2011. **Resultados:** la mayoría de los pacientes no tenían enfermedad de base; tenía un peso normal, siendo clasificada como ASA 1; fue hospitalizada durante 3-6 días y fue operada con duración igual o inferior a 70 minutos. No se encontró asociación estadísticamente significativa entre los factores de riesgo para el desarrollo de la infección en los grupos con o sin este factor. **Conclusión:** con la búsqueda después del alta, la tasa de ISQ después de cesárea aumentó en hasta cuatro veces. La búsqueda fonada era un buen método de aplicación. **Descriptores:** Cesárea; Infección de Herida Quirúrgica, Vigilancia Epidemiológica.

¹Academic, Graduate Nursing Course, State University of Montes Claros/UNIMONTES. Scholarship student of the Institutional Program for Scientific Initiation Scholarships (PIBIC)/CNPq. Montes Claros (MG), Brazil. Email: cassio-enfermagem2011@hotmail.com; ²Egress Nurse, State University of Montes Claros/UNIMONTES. Montes Claros (MG), Brazil. Email: kmilafroes@yahoo.com.br; ³Nurse, Master Teacher, Department of Nursing of the State University of Montes Claros/UNIMONTES. Montes Claros (MG), Brazil. Email: renatapfonseca@yahoo.com.br; ⁴Nurse, Specialist in Emergency, Trauma and Intensive Care; Coordinator of the Intensive Care Unit, University Hospital Clemente de Faria/HUCF. Montes Claros (MG), Brazil. Email: mrtorres26@yahoo.com.br

INTRODUCTION

According to Decree n.º2.616, of May 12nd, 1998, prevailing at the moment, nosocomial infection (NI) is defined as all those acquired after the patient is admitted in a hospital. It can occur during hospitalization or after discharge, since it is related to patient stays in the institution or to hospital procedures. Also, according to this Ordinance, nosocomial infections are considered those that manifest 72 hours before admission, when coupled with diagnostic and/or therapeutic procedures performed during this period. Infections in the newborn are hospital, except those transmitted through transplacental form and associated with rupture of membranes more than 24 hours.¹

The surgical site infections (SSI), in turn, formerly called surgical wound infections, are those affecting tissues and organs and cavities incised manipulated during a surgical procedure.² ISC occupy the 3rd place among the most frequent causes of hospital infection, they represent about 14% to 16% of these. Among surgical patients, SSI appears as the most prevalent cause for about 38% of nosocomial infection, followed by pneumonia and by urinary tract infection.³ In Brazil, most hospitals do not perform the monitoring of post-surgical patient discharge, although this practice is essential to reduce underreporting of these infections.²

An extensive monitoring program can reduce the rates of SSI by 30% to 40%; but, for this program to be effective it must know the real incidence of these infections and associated risk factors, since the frequencies of SSI have been used as an important indicator of the performance of surgeons and also the institution. For this, the SSI should be adjusted for type of surgery and the risk of infection.^{3,2} The search ISC restricted to the period of hospitalization tends to have lower rates of SSI when compared to those occurring in seeking post-discharge.⁴

When considering that 12% to 84% of SSI ceases to be notified when monitoring is restricted to hospitalization, emphasizes the importance of a reliable rate of nosocomial infection, which represents what happens in reality, because its analysis is today a control parameter of quality of service provided by a hospital. Moreover, an important reason to know the real rate of SSI is to return surveillance data for the surgical team can decrease infection rates by up to 35%.²

The search after discharge of the patient can be accomplished in several ways, such as ambulatory surgical egress, search by phone,

letter, and questionnaire, among others. Despite the need to search after high for truer rates, an obstacle to their realization is that none of the existing methods has been fully accepted or validated.² Thus, it becomes necessary to conduct research to determine which method is the most appropriate for each institution, since the choice of method should take into account the peculiarities, such as the type of institution attended and clientele, the infrastructure and human resources available.⁵ Additionally, hospital infections are considered serious problems in public health. In this sense, minimize its proportion is interesting, as a relevant indicator of quality of hospital care.⁶ This becomes even more apparent in the occurrence of SSI, which generates major complications and mortality impact, as it prolongs the length of hospitalization the patient. Besides generating permanent damage to health.⁷

In the scientific panorama, research can contribute to the elucidation of methods which are constantly exploited in some enough to choose hospital realities without criteria, since, on the various methods that exist for performing post discharge search, none was yet fully accepted as the most usable or most relevant in the context in which it operates.² Moreover, science has sought to contribute to the elucidation of such phenomena.⁸ Through this perspective, inserted in this context, the nurse needs to seek transformation and innovation on its performance in health care.⁹

The present study, in this context, is relevant to the generation of new knowledge on the subject, in view of the lack of specific research on the subject matter and its interface with the quality in health care and nursing, with fewer risks to the safety of care provided in the obstetric setting. Thus, the objective is to identify the impact of post-high search rate of SSI related to cesarean section in a teaching hospital on the SSI rates obtained by the Office of Infection Control (HICS).

METHOD

This work was extracted from the monograph <<*The impact of post-discharge search rate of surgical site infection in the maternity ward of a teaching hospital in Northern Minas Gerais*>> presented to the Department of Nursing at the State University of Montes Claros / UNIMONTES.

This is an observational study with prospective cohort design. The setting was a university maternity hospital of the Unified

Health System (SUS) located in Montes Claros, in the northern State of Minas Gerais. The institution has 171 inpatient beds, 25 being located in motherhood and for the care of pregnant women at high risk and low risk.

The population consisted of pregnant women who met the inclusion criteria: having undergone a cesarean section in the hospital during the study period; having period more than 24 hours hospitalization; reside in Montes Claros; SSI had not been diagnosed during the hospital stay for childbirth; have not shown evidence of infection on admission; agree to participate in the research by completing the Statement of Informed Consent and informing the telephone. Patients who did not allow the contact to a maximum, the 3rd attempt after the scheduled date was excluded, that in hospital until the 30th day postpartum and that showed SSI notified by SCIH.

Clinical and obstetrical characteristics and risk factors evaluated were the presence of underlying disease, classification of the American Society of Anesthesiologists (ASA), the Body Mass Index (BMI), according to the classification of the World Health Organization (WHO), smoking, time of patient admission and duration of cesarean section. The potential for contamination was not analyzed since it is considered clean caesarean surgery.

It was used an especially form built for this investigation, subdivided into three parts: the first with the identification data and demographic data; the second is related to the surgical procedure and the clinical condition of the patient; and third, with questions regarding postoperative evolution, applied on power after the 30th day postpartum. The sources were the patient and / or caregivers, the prenatal care, the medical record of the patient, the Book of Cesarean obstetric block and Sagwin® software, used in the institution. The forms were analyzed according to the criteria for diagnosis of SSI's National Health Surveillance Agency (ANVISA).¹⁰

The data collection took place in the period from April to July 2011. Initially, a pilot test was carried out, after which modifications have been made in the form of data collection with a view to standardizing the questions, apart from the addition of inclusion/exclusion criteria of the study. Once you have identified the patients submitted to cesarean section that fulfilled the inclusion criteria, the invitation to who has recently given birth to voluntary participation in research.

The collection took place in two stages. The first occurred while the patient remained

hospitalized, when it began filling out the search form post-discharge. The second stage was held from the 30th postoperative day, when the patient had already received high, being the completed form via phone call.

On the 30th postoperative day, the phone call was made to the participant. For those who did not attend the 1st attempt, tried to be the 2nd and 3rd contact by telephone, in days and / or alternating schedules.

After collection, the data were organized and analyzed using the statistical program Epi info, version 3.5.3. Became the Fisher exact test to ascertain statistical associations, adopting the value of $p \leq 0,05$.

The present study was approved by the Ethics Committee of UNIMONTES through Embodied Opinion 2244/2011, ensuring compliance with the ethical aspects of research involving humans, according to the Declaration of Helsinki and the Resolution n.º466/2012 of the National Health Council.

RESULTS

The population of this study resulted in a total of 72 women, and was initially composed of 101 patients who met the inclusion criteria, however, it was not possible to establish telephone contact for data collection with 26 (26,3%) of them, and 3 (3%) showed SSI notified by HICS, and then excluded from the research. Thus, the rate of adhesion method was of 73,5%. The telephone contact happened successfully in 1st attempt in 60% (43) of the cases, while 30% (22) was only possible to collect data on the 2nd attempt, and 10% (7), the 3rd attempt.

Regarding the socio-demographic profile of the patients, age ranged between 15 and 44 years old, average (A) of 28 years old and standard deviation (SD) of 6,7; 19% (26) had even finished elementary school, 67% (36), through high school, and 14% (10) had completed higher education. Most patients (61) have reported average household income of between R\$ 545.00 to R\$ 2.725,00 (between 1 and 5 minimum wages); only nine of them reported having an average family income of less than R\$ 545,00 (1 minimum wage), and two said they were above R\$ 2.725,00 (5 minimum wages). Regarding the occupation of the patients, it was found that 28 (38,9%) of them were unemployed, even before pregnancy. The most prevalent occupational categories were: sales (18,1%), household (8,3%), teacher (6,9%), administrative assistant (5,5%) and students (5,5%).

Regarding health status, the presence or absence of underlying disease was evaluated,

and were not considered illnesses that arose related to pregnancy. It was observed that 82% of patients had no underlying disease; 7 (10%) were hypertensive; 2 (3%) were cardiac; 1 (1%) was diabetic; and 3 (4%) had other diseases. With respect to body mass index (BMI), it was identified that 59% had normal weight; 25% (17) were overweight; 9% (6) had class I obesity; 6% (4) had class II obesity; 1% (1) were obese class III; and 3 of them did not have data on prenatal care or unable to provide the previous pregnancy or weight to your height to calculate BMI. When asked about smoking, 93% reported not smoking, and 5 (7%) said they smoke or they did recently.

Regarding the classification of the clinical status of ASA, 30% were classified as ASA 1; 11% as ASA 2; and 3% as ASA 3. There was an index of data loss equal to 56%, since this information was not reported in the files of 40 patients in the study.

Regarding the time of admission, it was observed that 61 (84,6%) patients were hospitalized during the period 3-6 days, and 7 (9,8%) of them were hospitalized for a period of 7 to 10 days; 3 (4,2%) were hospitalized for more than 10 days; and 1 (1,4%) of them, it was not possible to establish this fact. The minimum length of stay was 3 days, and the maximum equal to 26 days (A = 5, SD = 3,1).

During the study period, 16 were reported SSI and 6 in-hospital and 10 outpatient, found by the search after discharge, showing an underreporting rate equal to 62,5% (Table 1). The incidence of SSI in patients in the study, represented by the rate of nosocomial infection after discharge was equal to 13,88%, which represents the population of 10 infections in 72 patients in the survey.

Table 1. The occurrence and distribution of surgical site infection rate reported second location of diagnosis (hospital and after discharge). Montes Claros, MG, Brazil, 2011.

Diagnosis	SSI							
	Superficial		Deep		Organ/Cavity		Total	
	n	%	n	%	n	%	n	%
During hospitalization	2	22,2%	3	50%	1	100%	6	37,5%
After discharge	7	77,8%	3	50%	0	0%	10	62,5%
Total	9	100%	6	100%	1	100%	16	100%

Of the 10 SSI identified after discharge, 70% were diagnosed as topography, as superficial lesions and 30% were considered deep. With the implement of post discharge search the rate of post-cesarean SSI increased by up to 5 times, comparing with the amount notified by the HICS. The study findings show that 77,8% of superficial infections were reported to the pursuit of patients after hospital discharge, whereas 100% of infections, organ / cavity reported from only occurred with the patient in the hospital. The SSI had profound equal distribution in the active search during hospitalization and after discharge in the search.

Verification of duration of cesarean section according to the 75th percentile established by the National Nosocomial Infections Surveillance (NNIS) showed that 71% (51) had

a duration of surgery equal to or less than 70 minutes, and 18% (13) lasted more than 70 minutes, whereas in 11% (8) of C-sections of patients studied, it has not been possible to establish the duration of the sources of data collection. One can also verify that the minimum time identified for the cesarean section in patients was equal to 15 minutes, with a maximum of 120 minutes with an SD of 20 minutes and mean and median of 60 minutes.

With the implement of post discharge search, the rate of post-cesarean SSI increased by up to 5 times (April), comparing with the amount notified by the HICS. The distribution of the rates notified by the HICS and fees generated after the addition of SSI notified after discharge are displayed in Figure 1.

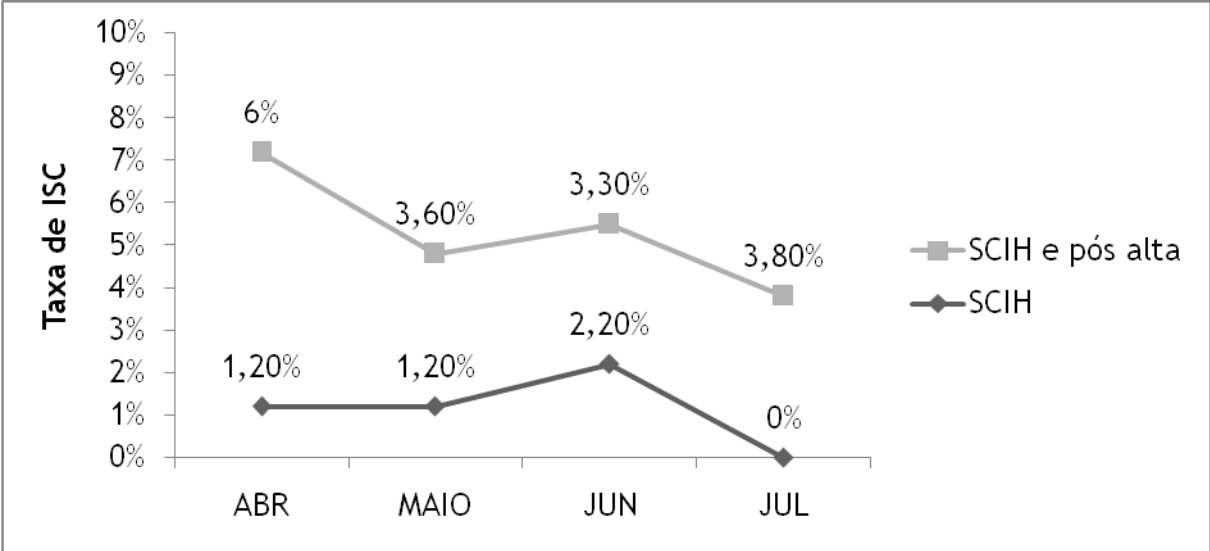


Figure 1. The impact of search after discharge on surgical site infection rate in maternity. Montes Claros, MG, Brazil, 2011.

Table 2 shows the frequency and univariate analysis of risk factors for SSI in patients studied. The presence or absence of SSI detected after discharge, in relation to the presence or absence of risk factors studied

was observed. No statistical association was found between the variables analyzed as risk factors for the development of infection in groups with or without other risk factors present ($p < 0,05$).

Table 2. Incidence of nosocomial infection according to the analyzed variables as risk factors. Montes Claros, MG, Brazil, 2011.

Variable	SSI				Total	p-value
	Yes		No			
	n	%	n	%		
Base disease						
Present	3	30	10	16,1	13	0,255*
Absent	7	70	52	83,9	59	
Total	10	100	62	100	72	
Smoking						
Yes	0	0	5	8	5	0,456*
No	10	100	57	92	67	
Total	10	100	62	100	72	
Classification ASA						
<3	6	60	24	38,7	30	0,395*
≥3	1	10	1	1,6	2	
Ignored	3	30	37	59,7	40	
Total	10		62	100	72	
BMI						
≤25 Kg/m²	4	40	38	61,3	42	0,133*
>25 Kg/m²	6	60	21	38,9	27	
Ignored	0	0	3	4,8	3	
Total	10	100	62	100	72	
Time of the surgery						
≤ 70 minutes	9	90	42	67,8	51	0,345*
>70 minutes	1	10	12	19,3	13	
Ignored	0	0	8	12,9	8	
Total	10	100	62	100	72	
Time of hospitalization						
≤4 days	7	70	35	56,4	42	0,348*
>4 days	3	30	26	41,9	29	
Ignored	0	0	1	1,7	1	
Total	10	100	62	100	72	
Type of anesthesia						
General	1	10	3	4,8	4	0,391*
Rachianesthesia	7	70	59	95,2	66	
Ignored	2	20	0	0	2	
Total	10	100	62	100	72	

* Fisher's exact test

DISCUSSION

This study identified the impact of post-discharge search rate of SSI related to cesarean section in a teaching hospital on the rates of SSI obtained by HICS.

The rate of adherence to the method was 73,5%, similar to the results observed in a

study performed at the same institution under study, which was conducted search through outpatient surgical graduates and obtained the rate of return of 83% of patients undergoing cesarean section.¹¹

A similar result also occurred in a prospective observational study that evaluated the implementation of active

surveillance after discharge post-cesarean SSI in the Maternity Otto Cirne, in the city of Belo Horizonte, Minas Gerais. Initially, 762 patients undergoing cesarean section, a total of 2.604 deliveries performed by the service in the analyzed period were identified. This corresponded to a cesarean rate of 29,3%. Of the patients included in the study, 34,4% were considered lost to follow as it has not been possible telephone contact during the 30 days postpartum. Thus, the study sample corresponded to 65.6% of cesareans performed. Of that group, 34 were reported in SSI period, which amounted to a rate of 6,8%¹². Thus, we find the same difficulty in the present work to have a higher rate of adherence to phoned search.

The socio-demographic characteristics and health status of women who participated in this research are similar to those found in prospective research on the rate of immediate maternal and fetal complications in elective Caesarean sections performed in a hospital in Criciúma, in Santa Catarina. The mean age of patients was 27.3 years. Of the 105 patients, 2 (1,9%) were smokers, 7 (6,7%) had gestational hypertension and 3 (2,8%), diabetes.¹³

However, in a study about the postoperative complications of patients at a university hospital in Jamaica, it was observed that the mean age was 44.8 ± 15.2 years old (range 16-88 years old), and median, 43 years old¹⁴, being superior and the divergent results observed in this study and research done in Criciúma.¹³

In contrast to these findings, in another study it was found that the average age of the total group of patients was 24.1 years old, and none had higher education - while, in the present study, 14% (10) had completed higher education. In 63 patients (57%), one can obtain height and weight. Among these, 52 (82.5%) had a body mass index (BMI) > 25 kg/m² and 29 (46%) were obese¹⁵, whereas patients in the setting of this research, mostly had the weight Normal (59%).

In the cited study done at a university hospital in Jamaica and another that investigated factors related to ISC after obstetric procedures, most patients were classified as ASA I^{14,15}, similarly to this research.

In other research, it was verified that the ASA rating ≥ 3 contributed to the manifestation of the SSI. In addition, it was observed that the loss of 1,95% procedures (334 in this variable was the lack of filling in the chart. However, in this study, there was a

higher incidence of patients classified as ASA 1 (30%), and the data loss was higher (56%).⁴

The period of preoperative hospitalization is often associated with increased risk of the patient developing ISC due to skin colonization by microbiota hospital characteristics. In the study, preoperative length of hospitalization ranged from 1 to 33 days, and in those patients with seven days of prior hospitalization, rates of ISC become up to two times higher than those who remained hospitalized only 1 day, corroborating the results of this search.¹⁶

It is noteworthy, as the hospitalization time, that there is a global trend of increasingly reduce the time of hospitalization. This trend is due to the pressure coming from the need to restrict hospital costs, advances in surgical techniques and associated patient care technology. Thus, surgeries that until a few years ago, required several days of hospitalization, are performed on an outpatient basis or with short hospitalizations. This phenomenon, although beneficial to patients and the healthcare system, consequently brought the difficulty of access to information on the onset of surgical infection, since it will only become manifest after discharge.¹⁷

The cutoff point of the duration of the study caesareans is within the limits established by authors¹⁸ indicate that the 75 percentile of time for this surgery is equal to 1 hour.

The incidence of SSI in patients in the study was similar to the findings obtained in a study in which the rate of SSI in patients who returned to the clinic was equal to 10,2%.¹¹ The values of ISC related to cesarean coincide with another study, in which 37,1% of ISC diagnosed during hospitalization, whereas 62,9% were diagnosed during follow-up after discharge.¹⁹ In contrast, it was found on investigation it was found that about 63% of SSI were identified in hospital and 37% after discharge.²

In research that investigated the occurrence of SSI and described the characteristics of cases among patients seen in the surveillance of post-high school graduates in Brasília, Federal District hospital program analyzed that although the hospital is an institution of education with the purpose of graduation, residency and residency in multidisciplinary health, which implies constant turnover of students and residents, although lacking the technical skill to improved surgical procedures and for providing perioperative care, the proportion of SSI average post hospital discharge was

3,4%.²⁰ In contrast to this reality, the scene of this investigation, which was also made in a university hospital that has the same characteristics of that hospital scenario, the average SSI after hospital discharge was 13,88%.

As appertaining to the topography of post discharge infections reported findings are corroborated by those verified in a maternity hospital in Minas Gerais, where the majority of the surface was also SSI results.¹² In addition, another study showed that 76,5% of SSI deep were reported during hospitalization, and the most superficial (68,3%) was reported by outpatients.¹⁹

Similar results were also found by other researchers when have studied two different institutions, and, in one telephone contact was used to perform search after discharge; in another, outpatient return. It was observed that, in the first institution of 68 SSI reported after discharge, 67 were classified as superficial and 1 deep; at another institution, it was possible to notify, and 44 SSI shallow, 2 SSI deep and 2 SSI organ / cavity.⁴

The data relating to ISC identified after discharge reinforce the findings of authors who have investigated in their investigations, the majority (88%) of the identified infections after discharge, through outpatient specialist, was superficial involvement, while only 12 % classified themselves as deep.¹⁹

With the implement of post discharge search, the rate of post-cesarean SSI increased by up to 5 times, comparing the amount notified by the HICS, as well as research in which we observed an important impact on infection rate corresponding to four times.⁴

The identification of more cases reinforces the need for active surveillance of SSI notification, as well as the importance of telephone monitoring, this being a viable practice for most hospitals. Thus, the objective is to reduce underreporting associated with the routing of the mothers to help where needed, the next aid in the diagnostic setting and appropriate treatment.¹² In this sense, it is evident the importance of instituting, services surveillance of infection Brazilian hospital healthcare facilities, ambulatory monitoring of surgical patients after discharge to reduce underreporting and for valid indicators of SSI, period considering the large number of events identified after patient discharge.²⁰

Was identified in the study that there was more infection among overweight patients than among those not overweight ($p =$

0,02).¹¹ However, in this study, no statistically significant associations were found, which also occurred in a university hospital, where there correlation between the risk of developing minor postoperative complications and ASA classification, comorbidity, and duration of surgery.¹⁴

With regard to limitations, was considered to limit the study to small sample size, since most women who underwent cesarean section during the study period did not meet the inclusion criteria, the main factor excluding residence in another city. Furthermore, there was a loss of 26,5% of the sample that initially filled the inclusion criteria, but not allowed telephone contact within the period specified. This same limitation was also observed in another study.¹²

Regarding the time of onset of ISC was not possible to establish it, because the patients who developed infection not able to inform. This may be related to the time interval between the patient and the day high of binding, since most of the patients (84,6%) were hospitalized within 7 days after delivery.

Another factor that negatively interfered in the search results was the lack of data. While items such as ASA classification and duration of surgery are important risk factors for SSI, often are not evaluated or recorded in the leaves fill the surgery.

In this scenario, these restrictions cause receivership further studies in the institution setting and allow recommending the same utmost care in relation to records in the chart and on the mother's card for future research to study the subject in more depth. It is believed that the results shown by this study, and others on the subject under consideration, may sensitize service professionals about the need for post-discharge follow-up in order to ensure high reliability of indicators of SSI in order to achieve feasible aimed at the prevention and control of these risks, improving the monitoring system with new parameters action.²⁰ Moreover, you can create opportunities for higher quality care provided by these services, improving the quality of care for women who make up their clientele.

CONCLUSION

This study demonstrated that the pursuit of post-discharge SSI rate related to cesarean section constitutes a strategy that generates positive impact on the reporting of SSI rates obtained by HICS. This makes it more worthy to be used towards improvements to the care provided by the hospital.

The phoned search methodology was presented as easy to use and low cost. Being a teaching hospital facilitated the acceptance of research by patients and by relatives who were willing to participate and happy to receive special attention, primarily because they are sensitized in the postpartum period. The negative point to be emphasized, related to the methodology phoned search is mainly due to the adherence rate that, despite being within the limits established in the literature, caused significant loss from the sample.

REFERENCES

1. Brasil. Ministério da Saúde. Portaria n. 2616, Diário Oficial da União, Brasília, 12 de maio de 1998. Brasília: Ministério da Saúde, 1998.
2. Martins MA, França E, Matos JC, Goulart EMA. Vigilância pós-alta das infecções de sítio cirúrgico em crianças e adolescentes em um hospital universitário de Belo Horizonte, Minas Gerais, Brasil. Cad Saúde Pública [Internet]. 2008 [cited 2013 Sept 19];24(5):1033-41. Available from: <http://www.scielo.br/pdf/csp/v24n5/10.pdf>
3. Couto RC, Pedrosa TMG, Amaral DB. Infecção hospitalar e outras complicações não-infecciosas da doença - epidemiologia, controle e tratamento. Rio de Janeiro: Guanabara Koogan; 2009.
4. Oliveira AC, Carvalho DV. Evaluation of underreported surgical site infection evidenced by postdischarge surveillance. Rev Latino-Am Enfermagem [Internet]. 2007 [cited 2013 Sept 11];15(5):992-7. Available from: <http://www.scielo.br/pdf/rlae/v15n5/v15n5a16.pdf>
5. Oliveira AC, Ciosak SI. Infecção de sítio cirúrgico no seguimento pós-alta: impacto na incidência e avaliação dos métodos utilizados. Rev Esc Enferm USP [Internet]. 2004 [cited 2013 Sept 11];38(4):379-85. Available from: <http://www.scielo.br/pdf/reeusp/v38n4/03.pdf>
6. Garcia LM, César ICO, Braga CA, Souza GAAD, Mota EC. Perfil epidemiológico das infecções hospitalares por bactérias multidrogaresistentes em um hospital do norte de Minas Gerais. Rev Epidemiol Control Infect [Internet]. 2013 [cited 2013 Sept 12];3(2):45-9. Available from: <http://online.unisc.br/seer/index.php/epidemiologia/article/view/3235/2792>
7. Gomes e Claudino H, Fônsaca LCT. Cirurgical site infection: preventive actions of the commission of hospital infection control. J Nurs UFPE on line [Internet]. 2011 [cited 2013 Sept 19];5(5):1180-6. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/1536/pdf_548
8. Vasconcelos-Raposo J, Teixeira CM, Fernandes HM. Uma reflexão crítica sobre a prática científica e o seu contributo para a qualidade de vida da sociedade. Motri [Internet]. 2012 [cited 2013 Aug 19];8(1):1-4. Available from: <http://www.redalyc.org/articulo.oa?id=273023647001>
9. Sampaio FC, Cadete MMM. The training of the nursing professional in the viewpoint of the nursing students: activities supported on the problematization. Rev enferm UFPE on line [Internet]. 2013 [cited 2013 Sept 18];7(1):657-64. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/3473/pdf_2124
10. Brasil. Agência Nacional de Vigilância Sanitária. Sítio Cirúrgico. Critérios nacionais de Infecções relacionadas à assistência à saúde [Internet]. Brasília, 2009 [cited 2013 Aug 8]. Available from: http://www.anvisa.gov.br/servicos/contr/ole/criterios_infeccao_trato_respiratorio.pdf
11. Santana LA. Infecção hospitalar em pacientes submetidas à cesárea: impacto da vigilância pós-alta na redução da subnotificação [dissertação de mestrado]. Programa de Pós-Graduação em Ciências da Saúde da Escola Paulista de Medicina da Universidade Federal de São Paulo; 2002.
12. Romanelli RMC, Aguiar RLP, Leite HV, Silva DG, Nunes RVP, Brito JI et al. Estudo prospectivo da implantação da vigilância ativa de infecções de feridas cirúrgicas pós-cesáreas em hospital universitário no Estado de Minas Gerais, Brasil, 2010 a 2011. Epidemiol Serv Saúde [Internet]. 2012 [cited 2013 Sept 18];21(4):569-78. Available from: <http://scielo.iec.pa.gov.br/pdf/ess/v21n4/v21n4a06.pdf>
13. Alban ES, Araújo JH, Martins AV, Moraes MV, Maciel VL. Cesárea Eletiva: complicações maternas e fetais. ACM arq catarin med [Internet]. 2009 [cited 2013 July 28];38(1):45-8. Available from: <http://www.acm.org.br/revista/pdf/artigos/624.pdf>
14. Tennant I, Augier R, Crawford-Sykes A, Ferron-Boothe D, Meeks-Aitken N, Jones K et al. Minor postoperative complications related to anesthesia in elective gynecological and orthopedic surgical patients at a teaching hospital in Kingston, Jamaica. Rev Bras Anesthesiol [Internet]. 2012 [cited 2013 July 26];62(2):188-98. Available from:

http://www.scielo.br/pdf/rba/v62n2/en_v62n2a05.pdf

15. Petter CE, Farret TCF, Scherer JS, Antonello VS. Fatores relacionados a infecções de sítio cirúrgico após procedimentos obstétricos. *Sci Med [Internet]*. 2013 [cited 2013 Oct 6];23(1):28-33. Available from: <file:///C:/Users/orlene.dias/Downloads/12715-51562-1-PB.pdf>

16. Poveda VB, Galvão CM, Hayashida M. Análise dos fatores de risco relacionados à incidência de infecção do sítio cirúrgico em gastrocirurgias. *Rev Esc Enferm USP [Internet]*. 2003 [cited 2013 July 6];37(1):81-9. Available from: <http://www.scielo.br/pdf/reeusp/v37n1/10.pdf>

17. Guimarães JR, Pires M, Konkevicz L, Fink F, Endres ACT, Caye L et al. Sistema informatizado de notificação de infecção cirúrgica pós-alta no Hospital de Clínicas de Porto Alegre - RS. *Rev HCPA [Internet]*. 2009 [cited 2013 July 29];29(1):18-22. Available from: <http://seer.ufrgs.br/hcpa/article/viewFile/2036/4961>

18. Couto RC, Pedrosa TMG, Nogueira JM. Infecção hospitalar e outras complicações não-infecciosas da doença - epidemiologia, controle e tratamento. 3rd ed. São Paulo: Medsi; 2003.

19. Oliveira AC, Martins MA, Martinho GH, Clemente WT, Lacerda RA. Estudo comparativo do diagnóstico da infecção do sítio cirúrgico durante e após a internação. *Rev Saúde Pública [Internet]*. 2002 [cited 2013 Sept 29];36(6):717-22. Available from: <http://www.scielo.br/pdf/rsp/v36n6/13526.pdf>

20. Batista TF, Rodrigues MCS. Vigilância de infecção de sítio cirúrgico pós-alta hospitalar em hospital de ensino do Distrito Federal, Brasil: estudo descritivo retrospectivo no período 2005-2010. *Epidemiol Serv Saúde [Internet]*. 2012 [cited 2013 Sept 12];21(2):253-64. Available from: <http://scielo.iec.pa.gov.br/pdf/ess/v21n2/v21n2a08.pdf>

Submission: 2013/12/14

Accepted: 2014/03/26

Publishing: 2014/07/15

Corresponding Address

Cássio de Almeida Lima
Rua Rodrigues Alves, 243 / Centro
CEP 39400-062 — Montes Claros (MG), Brazil