

Search for efficiency without neglecting safety in the design and construction of a new ambulatory surgery centre

W. Salgado Jr.^{a,b}

Abstract

Aim: To describe the experience of a recently created ambulatory surgery centre. **Methods:** Report of the experience and the routine implemented in the ambulatory surgery centre and survey of retrospective data in the data bank of the hospital.

Keywords: Ambulatory surgery; efficiency; safety.

Author's address: ^a Dept. Surgery and Anatomy, Clinical Hospital of the Faculty of Medicine of Ribeirão Preto, University of São Paulo, Brazil. ^b State Hospital of Ribeirão Preto, Brazil.

Corresponding author: W. Salgado Jr. Tel: +55 16 36027117 Fax: +55 16 36022593 E-mail: wsalgado@fmrp.usp.br

Results: Our hospital has high surgical productivity, with highly satisfactory hospital quality indices such as a low rate of surgical site infection, minimal mortality and very high user satisfaction.

Conclusion: Even after a short functioning time, it is possible to structure a highly productive ambulatory surgery centre of excellent quality. Attention to the elaboration of processes, routines and participation and training of the staff is important.

Introduction

More than 60% of elective surgery procedures in the United States were being performed as outpatient procedures by the year 2001 [1], and in 2008, more than 22 million ambulatory surgery procedures were performed in that country [2]. There are many reasons justifying these numbers such as: improved surgical instruments, anaesthetic drugs and techniques; less invasive surgical techniques; multidisciplinary pre-operative preparation; improved pain and nausea control; post-operative protocols [3].

Ambulatory surgery has many advantages compared to inpatient surgery. There is minimal alteration to the routine of patients and their families and the care provided is individualized. Among other benefits, the risk of hospital infection and the costs of the procedures are reduced [4].

However, there is a constant concern about patient safety since there are aspects of ambulatory surgery that cannot be fully controlled, such as adherence to all pre-operative guidelines and to post-operative home care [4]. This topic should be taken into consideration, especially so when the goal is to structure a centre of ambulatory surgery with high efficiency and productivity.

Three years ago, when we received the responsibility to organize a public ambulatory surgery centre, all of these aspects were carefully planned. Special attention was devoted to the following parameters: compliance with current norms, humanization of care, technical and personnel habilitation, and protocol elaboration.

The objective of the present paper is to present the experience with the organization of the ambulatory surgery centre of the State Hospital of Ribeirão Preto and to describe the general results obtained after 2 years of effective functioning.

Methods

The State Hospital of Ribeirão Preto was built in order to deal with patients with diseases considered to be of medium complexity, and started its surgical activities on May 12th, 2008.

Data was obtained from a retrospective survey of the data bank of the State Hospital. Almost all patient data is recorded in an informatized system (registration of presence, clinical observation and evolution, surgical file card, prescriptions, request for surgery, etc.), a fact that facilitates data retrieval.

Results

The State Hospital of Ribeirão Preto is a small hospital equipped with 4 operating rooms, 6 recovery beds, 10 ambulatory rooms and 50 beds mostly used by the internal medicine staff for emergency admission of medium complexity. In addition, facilities such as a sterilization centre, pharmacy and catering are provided on the premises. However, laundry and laboratory services are outsourced.

From the time when the hospital started its activities to April 2010, 8872 patients were operated upon in the following surgical specialties: ophthalmology, otorhinolaryngology, orthopaedics, general surgery, plastic surgery, urology, paediatric surgery, proctology, dermatology, dentistry, and vascular surgery. A total of 218 procedures across all specialties were performed. Most of them were surgical procedures of medium complexity (e.g. inguinal hernia repair, laparoscopic cholecystectomy, fasciectomy, tonsillectomy, knee arthroscopy, etc.). Some procedures were minor, such as excision of skin lesions, but some were more complex, such as major incisional herniorrhaphy, reconstruction of complex shoulder ligament injuries, reconstruction of intestinal transit after colostomy, and bilateral saphenectomy, among others.

When surgical production was analyzed on a six month basis, activity was found to be reduced during the end of the year period, but even so the number of procedures tended to increase over the two year period (Table 1).

Table 1 Surgical production of the State Hospital divided by half-year periods.

Half-year periods	Number of operations performed
May to October 2008	1476
November 2008 to April 2009	2155
May to October 2009	2742
November 2009 to April 2010	2499

Despite the large surgical volume, so far only one death has occurred. This involved a patient submitted to correction of gynaecomastia. In this case, the probable cause of death, as determined at autopsy, was severe cardiac arrhythmia secondary to the administration of ondasetrone for the control of post-operative nausea.

In order to be able to operate on this number of patients during this period we attended 24,029 patients in the outpatient department.

A total of 435 patients required hospitalization, most of them being patients submitted to more complex procedures who were admitted in order to receive better analgesia and the re-introduction of feeding.

We are constantly striving to reduce the rate of suspended surgeries. During the study period, 1351 surgeries were suspended, 463 of them due to institutional reasons (broken equipment, surgical delays, etc.) and 888 due to patient reasons (no-show, patient with no clinical conditions on the scheduled day, lack of pre-operative fasting, among others).

An outpatient clinic for discharged patients was created, with all operated patients required to return for removal of sutures and at least once more up to the 30th post-operative day in order to guarantee the notification of cases of surgical site infection. The Hospital Infection Committee actively participates in this clinic. On this basis, 76% of the patients returned during the post-operative period. Since we called all patients who failed to come for the first return, different justifications were given for their no-show such as lack of transportation and removal of sutures in the city of origin as an option chosen by the patient himself, among others.

The rates of surgical wound infection, considered to be very low, are presented in Table 2.

Table 2 Rate of surgical site infection during the two years of functioning of the Hospital. The results are presented according to the classification of the surgical wound.

Year	Clean surgery	All surgery
2008*	0.67%	0.6%
2009	1.1%	1%

* starting May 2008.

Discussion

A hospital that strives for quality and efficiency of care must work with indicators, written operational protocols, and well established routines. More importantly, these factors must be constantly updated and communicated to the entire staff, who must be trained to follow such routines [5].

One of the first steps in the elaboration of the care process and of the physical structure of an ambulatory surgery centre is to comply with prevailing norms. In the case of our hospital, two sources of regulation have to be obeyed: Resolution SS- 002 of January 6, 2006 of the Health Secretariat of the State of São Paulo, and Resolution CFM n° 1.409/94 of the Federal Council of Medicine, later replaced in 2008.

Several approaches were established in order to try to reduce the number of suspended operations. Protocols were first elaborated and sent to all towns that send patients to be operated upon at the hospital. These protocols established rigid criteria for patient selection based on the complexity of the procedures and on the physical status classification system of the American Society of Anesthesiology [6].

On the same day when he is examined by the surgeon the patient also has a consultation with the anaesthetist, who evaluates his surgical risk. All information regarding the day of surgery, pre-operative fasting, the use of medication etc. is given verbally and in writing to the patient and his accompanying person by these two doctors. At the end of these visits, the patient undergoes a post-consultation with the nursing staff for a re-statement of all the guidelines. In addition, in order to fully assimilate the information, the patient watches a 5 minute video that confirms all the information. Finally the patient receives guidelines from the social service in order to solve possible problems related to his job and transportation to the hospital.

It should be also mentioned that, one day before the scheduled surgery, every patient will receive a phone call from our social service in order to be reminded of all instructions and to be questioned about possible problems such as diseases, transportation etc. Despite these measures, our rate of surgery suspension due to patient reasons are still high, but would definitely be much higher without these precautionary measures. The standardization of conducts and routines is always mentioned in the literature as an important factor for the improvement of the efficiency of a surgical centre [7, 8].

Our time for room exchange is about 20 minutes and many anaesthetic procedures are performed in a room for anaesthetic induction, so that the patient will arrive at the operating room ready for the surgical act. More than 60% of anaesthetics are local or loco-regional, including those for inguinal hernia repair, and proctological and urological surgery.

In parallel to this special attention to effectiveness and productivity, we never relax our emphasis on the quality of care and on patient satisfaction. The constant presence of anaesthetists in the operating room even for less complex surgery and also in the anaesthetic recovery room is of fundamental importance in order to guarantee proper care for the patients.

Whenever a low rate of infection of the surgical site is reported, the question immediately raised is that undernotification may exist. A complete action strategy was elaborated to minimize this fact. A clinic for discharged patients was created, with every post-operative patient being required to return to the hospital during the first post-operative month. Informatized control of this return schedule was created, and when a patient failed to return he was contacted by telephone.

All doctors are encouraged by the Committee of Hospital Infection to notify cases of infection, with emphasis on the fact that doctors reporting such cases will not be punished. The form used for all return cases is informatized and one of the fields to be obligatorily filled out concerns the presence or absence of symptoms of surgical site infection. Finally, at the end of his visit, each patient participates in a post-visit session with the nursing staff, who are trained and advised to notify any case of suspected infection.

Crowning all of this work, the fact that most enriches our activity is the recognition shown by the patients treated at our hospital. In 2010, competing with 630 other hospitals, the State Hospital received the title of “Best Public Hospital in the State of São Paulo” according to the view of the patients.

Conclusion

We conclude that it is possible to deal with high surgical productivity without neglecting the quality, and especially the humanization, of care. For everything to occur according to plan, all employees should actively participate, whether they are from the support area, from the health area, or from the administration.

References

1. Costa MJ. The lived perioperative experience of ambulatory surgery patients. *AORN J.* 2001;**74**(6): 874–881.
2. Gerencher K. Doctor-owned surgery centers spark controversy. *Market Watch.* March 25, 2008. <http://www.marketwatch.com/story/doctor-owned-surgery-centers-spark-conflict-of-interest-debate>.
3. AORN guidance statement: Preoperative patient care in the ambulatory surgery setting. *AORN J.* 2005;**81**(4):871–883.
4. Meta-analysis of randomized controlled trials on the safety and effectiveness of day-case laparoscopic cholecystectomy. Gurusamy K, Junnarkar S, Farouk M, Davidson BR. *Br J Surg.* 2008 Feb;**95**(2):161–8.
5. Frezza EE, Girnys RP, Silich RJ et al. Commentary: quality of care and cost containment are the hospital based ambulatory surgery-challenges for the future. *American Journal of Medical Quality* 2000;**15**:114
6. <http://www.asahq.org/clinical/physicalstatus.htm>
7. Correll DJ, Bader AM, Hull MW, et al. Value of preoperative clinic visits in identifying issues with potential impact on operating room efficiency. *Anesthesiology* 2006;**105**:1254–1259.
8. Joshi GP. Efficiency in ambulatory surgery center. *Current Opinion in Anaesthesiology* 2008;**21**:695–698.