

# Day surgery: Are we transferring the burden of care?

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## Abstract

**Context:** Day procedures are preferred by many surgeons for minor and intermediate procedures in fit patients. It is however considered to transfer the burden of care to care-givers and other healthcare providers.

**Aim:** The aim of the following study is to assess the tendency of day care patients seeking attention from health care providers and their ability to ambulate in the first week.

**Settings and Design:** Prospective study in a tertiary health facility in South-South Nigeria.

**Materials and Methods:** Patients in American Society of Anesthesiologists class I and II undergoing day-care procedures in a surgery unit were assessed at one week for the effects of the procedure on ambulation and their likelihood to seek medical attention. Data on the sex, type of procedure, pain, bleeding and ambulation was analyzed. A visual analog pain score of 0- 3 (mild); 4-6 (moderate) and 7-10 (severe) was used. Bleeding was defined as complete soaking of the two-layered gauze dressing with blood.

**Statistical Analysis:** Analysis was performed with SPSS 17 for Windows (SPSS Inc. Chicago, Illinois) and presented as percentages, mean and tables.

**Results:** A total of 99 patients comprised of 47 males and 52 females registered in the study; with a mean age of 38 years (range 16-70); 76 patients (77%) complained of pain at the operation site while 23 (23%) had no complaints. Pain was mild in 59 (78%) and moderate 17 (22%). None had severe pain or bleeding from the operation site; 85 patients (86%) could ambulate easily, 14 (14%) partially and none completely unable to ambulate.

**Conclusion:** Day procedures in selected patients has minimal affects on their ambulation and no increased risk of seeking medical attention in the first week and would appear not to transfer the burden of care to the community.

**Key words:** Ambulation, burden of care, community, day surgery

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## Introduction

A day case is one admitted for investigation or operation on a planned non-residential basis and who requires facilities for resuscitation.<sup>[1-3]</sup> Its major benefits include high quality surgery at low cost, high through-put, early mobilization and return to some form of gainful economic activity.<sup>[4]</sup> Day surgery is however not popular in our practice partly due to absence of dedicated facilities and perhaps from resistance by some surgeons to changes in practice. We often perform day procedures on a mixed list using in-patient facilities. This practice, though encouraging, is inefficient.

It is attended with high case cancellation rates arising from in-patient work load and emergencies.<sup>[5]</sup>

Day surgery practice is well developed in advanced economies of Europe and North America and follows laid down guidelines,<sup>[6]</sup> which have resulted in immense economic benefits to the patients, medical insurance agencies and health institutions. Its practice in low income countries, especially in Sub-Saharan Africa, is recent and often involves procedures done under local nerve block.

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Institutions in these countries follow or adapt foreign guidelines on practice to best suit their peculiar situation. Agbakwuru *et al.*<sup>[7]</sup> working in Ile Ife, South West Nigeria found day surgery to be practicable in rural and semi-urban areas with minimum transportation and communication facilities.

Faced with the challenge of a long operations waiting list in which many patients are young and fit for day procedures, we opted to select American Society of Anesthesiologists (ASA) I and II patients to undergo day surgery for minor and intermediate procedures as a way of meeting the increasing demand for surgery in our practice, improving our operations turn-over and creating space in the theatre for more major operations.

Day surgery has however been charged to lead to the transfer of the burden of care of the post-operative patient to the community or care-giver.<sup>[8,9]</sup> This charge calls for regular assessment and evaluation of the constraints patients undergoing day surgery encounter particularly in the first week. We assessed the need to consult a doctor on issues directly linked to the operation and audit the effect of day surgery on ambulation at one week as a measure of our transfer of the burden of care.

## Materials and Methods

### Study design

A prospective hospital based study involving consecutive patients undergoing day procedures in a single general surgery unit.

### Setting

A tertiary health facility in the South-South region of Nigeria catering for a large mix of patients.

### Inclusion criteria

Patients aged 18 to 60 years in ASA I and II, undergoing minor or intermediate procedures lasting 45 to 60 minutes with the intent of returning home same day.

### Exclusion criteria

Patients in ASA III and above, who were overly anxious, who did not have a mobile phone contact and resided more than one hour drive from the hospital.

### Ethical approval

Approval was sought and obtained from the institutional ethical review board.

### Methods

We reviewed at one week all patients in ASA I and II who underwent day surgery in a single general surgery unit over one year period. All patients were clinically assessed at their

first visit and a diagnosis made in the out-patient clinic and had a minimum investigation of full blood count and urine analysis and given an appointment for operation after being certified fit. They were scheduled to report on the operation day in a fast to an appropriate ward one hour to operation. A member of the team reviewed the patients, marked the operation site and obtained a written consent for operation before he/she is moved to the theater where their data and investigations results are crosschecked.

The procedures were done by the lead author under monitored local anesthesia using 1% xylocaine which was surgeon administered. They were admitted and monitored in the recovery room post procedure and discharged to the wards after 30 minutes. They received oral slow-release ketoprofen and paracetamol for post-operative analgesia. Final discharge and appointment was done when patient was fully alert; could take a drink, swallow the prescribed pain reliever and freely void urine. A contact phone number was given the patient and escort to call in case of an emergency and to report to the emergency unit of the hospital or a nearby primary health center or clinic.

We enquired, at one week, for evidence of difficulty with ambulation at home or the need by the patient to consult a healthcare provider with a complaint directly linked to the operation. The patient's bio-data and mobile phone number (s) were obtained at the first clinic visit. In the first week post-operatively, data on type of procedure, presence of pain at the operation site and its intensity using a visual pain score, dependence on a family member for preparing and taking meals or drinks, use of the conveniences and ambulating at home were prospectively documented on the same format. Ability of the patient to walk unaided to use these facilities was considered complete independence, whereas doing so with assistance was considered partial dependence. Complete dependence meant relying on a care giver for all these activities.

### Data analysis

The data was analyzed using statistical package for social sciences (SPSS) 17 (SPSS Inc. Chicago, Illinois) and presented as simple percentages, mean and tables.

## Result

A total of 104 procedures were done on 99 patients [Table 1]; 52 females and 47 males (f:m = 1.3:1). The mean age of patients was 38 years (range 16-70 years). Repair of abdominal wall hernias made up more than half the procedures. Mild pain at the operation site was the primary complaint, bleeding from the wound was not reported [Table 2]. Most patients were ambulant and level of dependence on a family member was low. No patient required seeing a doctor, nurse, or admission on account of a complication.

**Table 1: List of day case procedures undertaken**

Minor procedures	N (%)	Intermediate procedures	N (%)
Fibroadenoma (breast)	16 (32)	Inguinal hernia	40 (74)
Sebaceous cysts	7 (14)	Hydrocelectomy	5 (9.3)
Lipoma	6 (12)	Umbilical/paraumbilical hernia	4 (7.4)
Ganglion	4 (8)	Femoral hernia	3 (5.6)
In growing toe nail	4 (8)	Epigastric hernia	2 (3.7)
Lymph node biopsy	4 (8)		
Others	9 (18)		
Total	50 (100)	Total	54 (100)

**Table 2: Post-operative characteristics of day surgery patients**

Characteristic	Frequency (%)
Post-operative complaint	
Pain	76 (77)
None	23 (23)
Bleeding	0 (0)
Pain severity	
Mild	59 (78)
Moderate	17 (22)
Severe	0 (0)
Level of dependence	
Independent	86 (87)
Partially dependent	13 (13)
Wholly dependent	0 (0)

## Discussion

The unmet surgical need in the less developed world is huge.<sup>[10,11]</sup> Unfortunately these societies have a very low operations rate which contributes to disability, poor quality of life, increased morbidity and mortality as well as the prevailing poverty in such societies; in particular the rural communities where hospital cost is an important deterrent in accessing health care.<sup>[12]</sup> Innovative and cheap surgical technology with a high through-put is therefore considered a priority in these settings in tackling these identified surgical challenges. Adapting such technology to suit the local surgical needs can be considered as one of the measures of controlling minor and intermediate surgical pathologies which could become complicated and threaten life; and day surgery is an ideal surgical technology for poor countries.<sup>[13]</sup>

Day surgery carries the theoretical risk of transferring the responsibility of care of the surgical patient to relatives or other health providers in the community. However, while the debate on whether or not day surgery leads to the transfer care to the community and care-giver continues, the advantages of day surgery are not in dispute,<sup>[14]</sup> making it ideal for most minor and intermediate procedures.<sup>[15]</sup> Our study shows that day surgery in fit healthy and well selected subjects does not require the patient seeking additional attention from a primary care physician/private

practitioner or negatively impact on ambulation in the first week. We therefore consider it does not lead to the transfer of the burden of care to the community, family, or other health care providers. We encourage colleagues in low resource countries to maximally exploit the advantages of day surgery.

Day surgery is consultant driven and of good quality. Improvements in surgical techniques and anesthesia coupled with economic and patient pressure on the health system has broadened and continues to expand the scope of surgical procedures that are currently undertaken as day cases. Organized day surgery practice and provision of dedicated facilities is a priority<sup>[15,16]</sup> which must be considered by policy makers and implementers in curbing the disability associated with many surgical diseases including abdominal hernias, benign breast lumps, hydrocele and ganglion. Abdominal hernia in particular is still a surgical problem in Nigeria with unusually high incidence of avoidable complications and was the most common day procedure undertaken in our series. Good patient selection is paramount to achieving patient and surgeon satisfaction.

Many of our patients were of low socio-economic class and resided in accommodation where the toilet and kitchen facilities are often outside the living area of the home and the use of these facilities requires ambulation, which is an essential recommendation in day surgery practice.<sup>[17]</sup> We chose to look at this peculiar, though non-standardized feature of the patient's living/social condition to measure ambulation or its disruption as an indirect measure of part of the burden a day surgery patient may place on the community or relatives.

The known complications of day surgery include post-operative pain, bleeding and difficulty in passing urine.<sup>[5,18]</sup> Each of these, depending on severity, can limit ambulation or require the patient to be readmitted to hospital. Post-operative pain, especially when severe, limits ambulation and therefore worsens the patient's quality of life.<sup>[19]</sup> We limited procedures undertaken in the current study to that requiring minimal tissue dissection which when combined with adequate intra- and post-operative analgesia results in minimal post-operative pain which encourages early ambulation and less dependence. Most of the patients in our series complained of mild post-operative pain in the first week, which was adequately controlled by the prescribed oral analgesics, similar to findings by Faponle and Usang<sup>[20]</sup> among children who underwent day herniotomies in Ife. Most patients did not require analgesia beyond the third day. Few failed to comply with the orders or had irregular intake of prescribed analgesics in the first three days; such complained of moderate pain. No patient in our series reported pain severe enough to completely limit ambulating and therefore requiring dependence on a care-giver in using the conveniences, preparing and eating meals or walking out in the compound.

Bleeding from the operation site is another source of concern to both the patient and care-giver and can cause the patient to seek medical attention if severe. Good quality hemostasis is required in the day case setting because it limits this complication to a minimum and reduces the need for post-operative wound exploration to control bleeding or a change of dressing. We did encounter two cases of wound hematoma but did not record a case of bleeding that required the patient returning to hospital for change of dressing or admission. A change of dressing or removal of sutures by a nurse, primary health care physician or private practitioner, should it occur, is however not considered a transfer of care as this service would still be required were the patient to be managed as an in-patient.<sup>[21]</sup>

Ambulation is an important aspect of day surgery although full mobilization is not essential before discharge.<sup>[17]</sup> It was significant that most of our patients were fully ambulant in the first week and did not require the services of a family member to use the convenience, prepare and eat meals or take a walk outdoors while few required assistance only in preparing their meals. Few patients did actually engage in a form of gainful economic activities of a sedentary type in the first week. This was encouraging because anticipation of loss of income is a known deterrent to patients seeking early medical intervention. With this observed levels of independence of the services of a care-giver in performing the basic chores, we did not consider that we did transfer care to a care-giver.

We however appreciate some limitations of this study. The study population was small because of adopting strict selection criteria especially limiting procedures to that which can be executed with local anesthetic techniques only. Techniques of general anesthesia and central neuraxial block allowing for rapid emergence are increasingly practiced in the ambulatory setting<sup>[22]</sup> in Europe and America and have profoundly expanded the scope of day surgery procedures in these countries. There is an urgent need for surgeons and anesthetists in Africa to adopt similar techniques so to enhance the practice of day surgery in the continent.

Another important challenge was the absence of dedicated facilities for day surgery in our institution which is a common problem in Sub-Saharan Africa; we commenced this study in an under-utilized operation suite in the emergency unit with an initial excellent through-put but lost full access to this facility when it became fully dedicated to emergency surgery and we started experiencing cancellations from sharing space in the general in-patient theater thereby competing for theater space with in-patients. We have proposed a dedicated operating room for day cases. We hope to subsequently recruit patients in ASA III, include a few more invasive procedures under general or spinal anesthesia and interview the care-givers on their roles and concerns in the first week post procedure. We hope this will give us a better insight on the subject of transferring the burden of post-operative care to care-givers and other healthcare providers.

## Conclusion

Day surgery is ideal for most minor and intermediate procedures in selected fit and healthy subjects, having excellent prospects in rural Africa as a measure of combating the endemic burden of surgical diseases. It does not appear to transfer the burden of patient care to the other health care providers or the family. Enthusiasts of this technique are encouraged to continue innovating on their local practices while exerting pressure for the provision of ideal facilities for its practice.

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