REVIEW ARTICLE

Day case surgery in Nigeria

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Abstract

Patient care in Nigeria is mostly government funded, from primary to tertiary levels, with little contribution from private sector and non-governmental organizations. Healthcare provision has become more complex and expensive partly due to increasing population, aging, and frequent cancellations of electives, but also due to the increasing emergence of new diseases, as well as shrinkage of resources in many developing countries like Nigeria, resulting from recent economic downturn, and political instability. Therefore, it is important to introduce and popularize the concept of day case surgery, as this may help hospitals and healthcare providers to streamline resources by reducing length of hospital stay, decreasing morbidity and mortality, and providing valuable bed services to emergencies. It also helps to reduce time lost away from work and indirectly helps to decrease loss of revenue for the individual and state. Many hospitals in Nigeria provide day care services with patients admitted to the general surgical wards, and no dedicated day surgery units (DSUs), as currently practised in developed countries. DSUs are the best way to achieve results and so it is important for all to embrace this concept in order to improve healthcare delivery to the rapidly expanding populations. A systematic search of the current published literature was carried out to look for articles related to day case surgery (day care or day surgery) in Nigeria and to examine some published articles in relation to the surgical subspecialities, with a view to highlighting current practice in Nigeria and how it conforms to ideal practice elsewhere. Recommendations and suggestions are made on how to implement and popularize this concept in our hospitals.

Key words: Day surgery, developing countries, elective operations

Date of Acceptance: 18-Apr-2011

Introduction

The concept of day case surgery is becoming an increasingly important part of elective surgery worldwide. Although it accounts for over 50% of elective surgeries in the UK and over 60% in the US and Canada,[1] it is impossible to quote exact figures for African countries like Nigeria, and other developing countries since day surgery is still a relatively new concept in these latter countries. However, day case surgery is growing in popularity in Nigeria and Africa because of its twin benefits of convenience and cost-effectiveness.[2] Usang *et al.*[3] also revealed that day case surgery for inguinal hernia has been an established practice of the pediatric surgery unit of a teaching hospital in South Western Nigeria, for at least two decades.

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While 70% of all eligible surgical procedures in the UK are now undertaken as day cases for some operations such as cholecystectomy, the rates remain generally low, with fewer than 20% of patients treated as day cases, in some instances.[4] This low rate of day care operations was identified to be caused by poor management and organization of day surgery units (DSUs), as well as clinicians' unfounded worries about adverse patient outcomes.[4] Presently, the UK NHS plan set a target of 75% of all elective operations to be performed as day cases,[5] as this will help to streamline and channel the resources to appropriate services as the need arises.

This concept (day case surgery) was developed as a result of high cost of managing in-patients,[6] reduction in the availability

Access this article online	
Quick Response Code:	**Website:** www.njcponline.com
	DOI: 10.4103/1119-3077.91740
	PMID: 22248934

of hospital beds, as well as long waiting lists in government-funded hospitals that provide most of the healthcare to the majority of patients.[7] Day case surgery therefore has been popularized as a result of developments in anesthesia, pain control, minimally invasive surgery, as well as changing attitudes to recovery following surgery, coupled with the recent concept of enhanced recovery after surgery (ERAS).

There are important advantages to patients, especially children who benefit from the shortened hospital stay and immediate return to their family home environment to which they are more familiar.[8] As such, it is important to patients that the quality of care should be of the same standard or even better than that expected for in-patient surgery, and the successful provision of day surgery depends upon the attention to detail and quality throughout the patient's stay.[9] This is particularly true when considering the assessment of fitness for discharge and the accompanying discharge procedures.[10] Therefore, patients with minor or intermediate general surgical emergencies could also be treated as day cases without any reduction in the patients' clinical outcomes and with significant reduction in the overall healthcare costs.[11]

Methodology

A systemic search of the published literature, regarding day case surgery in Nigeria, was carried out using the following search words: day case surgery, day care surgery, and day surgery in Nigeria. We also included ambulatory surgery to give a wider scope to our search and avoid missing some relevant publications. The search machines used included Google, African Journals online (AJOL), PubMed/Medline, as well as Athens/NHS Evidence. However, some of the articles were listed on more than one search engine/website. We also analyzed the breakdown of the relevant publications according to the surgical specialities, with a view to highlighting areas that need more publications in these specialites. A review of some selected relevant papers regarding this concept (day case Surgery) in Nigeria has been undertaken to highlight the progress and challenges of day case surgery in Nigeria, and provide possible solutions and make recommendations for better compliance with ideal practice elsewhere. Google has the highest number of relevant publications, while Athens has the least. The following Tables 1-2 and Figures 1–3 show a breakdown of the literature search results.

Tables 1 and 2 show breakdown of the published articles by the search machines/websites and surgical sub-specialties, respectively.

Table 1: Breakdown of published relevant articles by search machine/website

Search machine/website	Number of relevant publications
Google	47
African Journals Online	32
PubMed/Medline	31
Athens/NHS evidence	9
Total	119

Table 2: Breakdown of the relevant published articles by surgical sub-specialties and search machines/ websites

Speciality	Google	PubMed	AJOL	Athens/NHS Evidence
GS/Oncology	13	7	16	3
T and O	-	-	2	-
ENT	1	3	1	-
Pediatric surgery	19	8	8	4
Neurosurgery	-	-	-	-
Plastics	4	2	-	2
Urology	6	3	3	-
CTS	1	-	-	-
Ophthalmic	-	1	1	-
Maxillo-facial	2	1	1	-
O and G	1	6	-	-
Total	47	31	32	9

Definition and historical perspectives of day case surgery

Day case surgery is defined as planned investigations or procedures on patients who are admitted and discharged on the same day of their procedure but require some facilities and time to fully recover before going home. This excludes minor procedures in the out-patients or accident and emergency departments. In many countries, this means that the patient spends a few hours in the hospital and does not stay overnight in the absence of complications or problems. But in the USA, the concept is referred to as ambulatory surgery and includes patients who may spend up to 23 hours in hospital, therefore allowing a greater range of procedures to be included in audit and planning.

Day case surgery was started in 1909 by James Nicoll and subsequently implemented and popularized by Ralph Waters, Eric Farquharson, and Walter Reed. However, initially this concept was very slow in gaining acceptance among surgeons due to widespread skepticisms and unfounded apprehension, and the significance of day surgery as a concept was only appreciated when the disadvantages of prolonged bed rest after surgery became more glaring in the 1940s.

From the 1970s, UK hospitals started developing DSUs in most places, although the free-standing DSU is still relatively unknown in the UK. Subsequently, day surgery began to take on a momentum on its own, supported by government and General Practitioners (GPs), who stressed the importance of benefits derived from day surgery and set standards and guidelines to be followed by all practitioners involved in patient care. The situation was subsequently reviewed by the UK Audit commission in 2001, which made

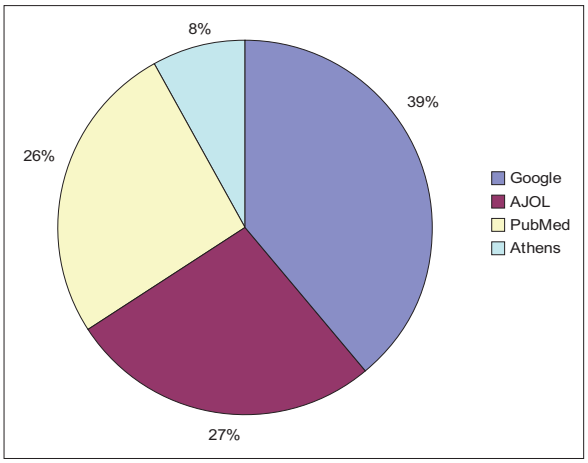

Figure 1: Proportions of published articles in search machines/ websites

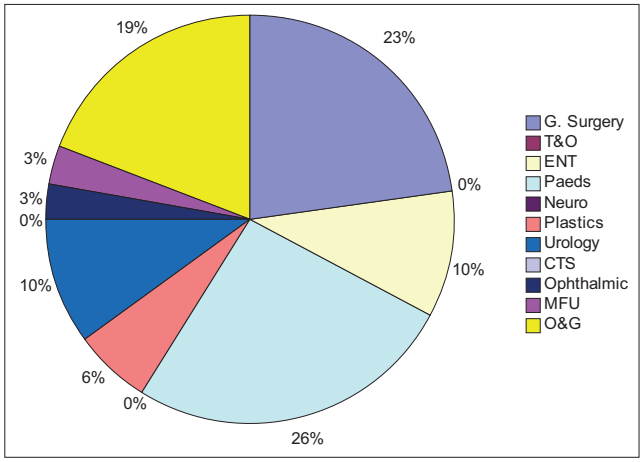

Figure 2: PubMed publications by speciality

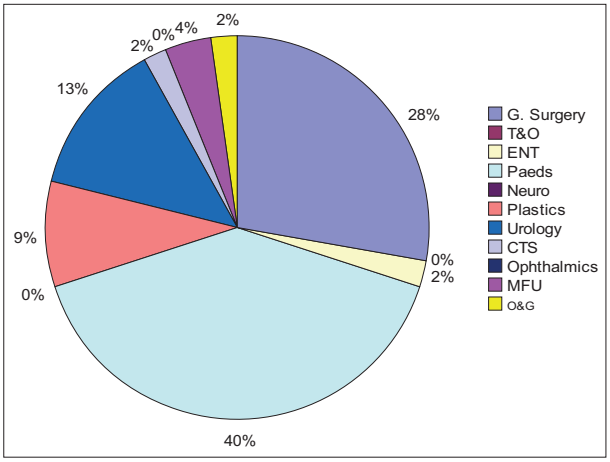

Figure 3: Google publications by speciality

recommendations for improvement and full implementation of the concept for the benefit of patients.

The British Association of Day Surgery's wider list of procedures suitable for day surgery is derived from actual practice in DSUs and indicates even greater scope of operations/procedures.[10] More recently, the British Association of Day Surgery has championed the cause of day surgery in the UK, with special reference to hospital's compliance with the principles of day surgery.[10]

Procedures suitable for day surgery

Many elective operations are suitable for day surgery, and 20 procedures were initially suggested as those that can be performed as day cases.[12] The list then updated (2001) to a trolley which includes 25 operations that can be performed as day cases, and subsequently broadened to include more major procedures that can be performed as day cases in up to half of the cases.[13]

A Cochrane systematic review of five trials (429 patients) by Gurusamy *et al.*[14] suggests that day case elective laparoscopic cholecystectomy seems to be safe and effective in selected patients, and there was no difference in patient satisfaction or recommendation between patients treated as day cases or with an overnight stay. However, it has been revealed[15] that over the period from 1996 to 2008, the number of re-admissions for laparoscopic cholecystectomy has grown from 4 to 6% as day case rates rose from 1 to 7%. This may suggest that more inappropriate patients are being treated as day cases; therefore, careful patient selection is essential for a successful outcome in day surgery.

In 1999, Palmer and colleagues carried out a review of duration of stay for patients who had retro-pubic prostatectomy and concluded that conventional management of men undergoing radical prostatectomy could safely be modified without reducing patient satisfaction or increasing morbidity.[16]

The important issue is to look for any justification for admitting the case as an in-patient, and that is why all patients must have pre-anesthetic review and assessment.[17] A study in a UK elective surgery center[18] concluded that a nurse-led pre-assessment clinic reduced cancellations and admissions. However, Mitchell indicated that recently, most nurses in DSUs received inadequate preparation for meeting the specific needs of day surgery patients.[19]

Types of day surgery practice

DSU, which can stand alone or within the main hospital, is a self-contained unit with separate admission suites, wards, theater(s), and recovery area, together with administrative facilities. It is the recommended, most cost-effective and efficient option, and enables efficient planning of admissions and scheduling of operating lists. Admission dates can be guaranteed which results in fewer cancellations, thus avoiding disappointment and inconvenience for the patient and also reduces duplication in the administration process.

Dedicated day surgery ward, with separate dedicated operating theaters and recovery. This is less satisfactory

than the DSU, and it is not optimal because the patient's journey may be less smooth relying on porters to take patients from ward to theater. The day surgery theater may be staffed with main theater personnel who are not fully trained and may be distracted by emergencies. This can be resolved by adequate training of nursing staff.

Dedicated day surgery ward, but no dedicated operating theaters or recovery. The day cases are carried out in the main theater as a separate list or at the beginning of the main operating list.

Day surgery patients in the main surgery ward mixed with in-patients, operated on the main surgery list with in-patients is even less successful. The stay-in rate rises from 2.4% in the free-standing DSU to 14% in an in-patient ward.[3]

Tables 3-10 below give a summary of the essentials of day surgery, desirable features of day surgery, challenges against day surgery, benefits of day surgery, potential problems of day surgery, criteria for selecting suitable procedures in day surgery, and the social circumstances required to establish a day surgery unit.

Anesthesia for day surgery

Problems arising from anesthetics are the main causes of unplanned admission, especially sleepiness, dizziness and nausea. This includes local, regional or general anesthesia, as well as sedation. Day case anesthesia aims to provide rapid and safe anesthetic conditions for surgical procedures, with a rapid and predictable recovery associated with reduced number of complications.

Propofol is commonly used for general anesthesia and is also anti-emetic, which is a major advantage in day surgery.[20] Children are increasingly induced by intravenous anesthesia, which is found to be fairly safe and allows for rapid recovery.[6,20] However, in developing countries like Nigeria, Ikechebelu and colleagues reported that ketamine is still commonly used in private hospitals where there is lack of qualified anesthetists and facilities.[21] Therefore, they suggested that ketamine could safely be used as it produces effective simple anesthesia, especially for day case laparoscopies.

Analgesia following day surgery

Common agents used for pain control include nonsteroidal anti-inflammatory drugs (NSAIDs), paracetamol, tramadol, as well as opioids (short and long acting). Good pain control is essential because pain is a major reason for delayed discharge, overnight admissions, GP consultations, as well as patient distress and dissatisfaction after the surgery.[22] It also affects early patient mobilization and delays return to normal function. Obalum *et al.* revealed that pain was the commonest postoperative complication following inguinal herniotomy or herniorrhaphy.[2]

Table 3: The essentials of good day surgery

- Appropriate procedures and patients must be selected
- Pre-admission assessment and information must be available
- Anesthesia and surgery with minimal morbidity and complications
- Postoperative and post-discharge analgesia
- Discharge criteria and postoperative instructions
- Follow-up and audit need to be carried out

Table 4: Desirable features of day surgery unit

- It should be self-contained, with its own reception, ward, theater(s), and recovery area
- Adjacent parking space should be available
- It should be well laid out with good patient flow
- DSUs should be equipped to the same high standards as in-patient wards and theaters
- Beds: Theater ratio should be related to specialities
- There should be flexibility for changing needs
- Protocols for patient selection, analgesia, and discharge criteria should be available
- There should be good record keeping
- Support services should be readily available
- Trained experienced staff should be at hand
- Consultant-led anesthesia and surgery
- Organized training with close supervision of trainees
- Clinical director should be in overall charge
- There should be teamwork between groups
- Liaison with community services

Table 5: Challenges against day surgery practice

- Cost
- Inappropriate and inefficient use of facilities and resources
- Inappropriate referrals
- Poor management and organization
- Clinician's preference for in-patient surgery
- Mixing of in-patients and day cases on the same list leading to cancellations
- Failure to recognize day surgery as a priority

Table 6: Benefits of day surgery

Day surgery is the admission of selected patients to hospital for planned surgical procedures, returning home on the same day, and true day surgery patients are those who require full operating theater facilities, with or without a general anesthetic, excluding out-patient procedures or endoscopies. The benefits of day surgery include the following:

- Reduced costs
- More efficient high-volume throughput of patients
- In-patient beds freed for major and emergency surgery
- Fewer cancellations on the day of surgery
- Low incidence of serious postoperative morbidity
- Reduced thrombo-embolism and hospital-acquired infections
- Minimal disruption of patient's life
- Early return to work and normal activities
- Patients, especially children prefer it
- Day surgery is cost-effective for primary care trusts

Fadiora also reported that all 102 consecutive patients who had day case surgery complained of pain postoperatively

Table 7: Potential problems of day surgery

- High initial cost of setting up day surgery units
- Good organization, management and training required
- Resistance from senior medical staff
- Poor patient and procedure selection
- Morbidity from surgery and anesthesia
- Provision of adequate information to patients
- Increased community (General Practitioners) workload

Table 8: Morbidity after day surgery

- Myocardial infarction
- Pulmonary infarction
- Respiratory failure
- Cerebrovascular accident
- Major postoperative hemorrhage
- Unrecognized damage to viscera
- Pain
- Nausea and vomiting (PONV)
- Dizziness and drowsiness
- Minor bleeding
- Infection
- Sore throat
- Headache

PONV= Post operative Nausea and Vomiting

Table 9: Criteria for suitable day case procedures

- Minimal physiological trespass
- The procedure(s) must not be associated with excessive blood loss or fluid shifts
- There should be very low risk of serious postoperative complications like bleeding or airway obstruction
- Duration of surgery up to 1 hour, with a maximum of 2 hours
- Pain must be controllable with oral analgesics after discharge
- The patient should be reasonably ambulant afterwards

Table 10: The social circumstances

- There should be ready access to a hospital or General practitioners (GPs) following discharge
- There should be a responsible adult to escort the patient home and take care of them until the next day. Longer care may be required for more major day cases and elderly or disabled partners may not be able to cope
- There must be reasonable home circumstances with good toilet facilities, few stairs to climb, and access to a telephone or reasonable means of communication
- The patients should live within 1 hour of traveling distance in order to reduce discomfort on their way home and to have easy access to hospital care if the need arises. Patients should arrange for private transport and should avoid public transport
- Alternative means of accommodation include hospital hotels, main hospital beds (23-hour admission), or community hospitals. This is a big problem in developing countries with long travel distances, which serve as big obstacles for day surgery practice

and therefore required adequate analgesia to control their symptoms.[23] Also, Faponle and Usang reported a significantly high rate (72%) of postoperative pain at home in children following day case surgery.[24] McQuay and Moore,[25] therefore, recommended that the package of care needs to be revisited regularly to reduce hospitalizations and hospital returns following surgical interventions.

Discharge following day surgery

The patient must be reviewed before discharge to ensure that the patient is fit to go home. There are formal discharge criteria and documentation to be signed by the delegated individual responsible for the discharge, usually a nurse.[10] Scoring systems used include Post-anesthesia Recovery Score (Aldrete) and Post-anesthesia Discharge Scoring System (Marshall and Chung). The patient and his/her escorts must be given clear instructions regarding his/her anesthetic and what to do, including removal of stitches and plan for follow-up. They must also be supplied with enough pain relief, along with written information on how to take it. The patient can be called later at home to re-assess his/her situation and regular audits can be carried out.

Literature review

Day surgery has now become well established in the UK and many other developed countries, and the day surgery strategy was launched in the UK in January 2002 with the intention of driving this concept forward in the National Health Service to meet the current demands. It was realized that there was need to meet the current demands of patient care, and day surgery has an important role to play by giving all practitioners the opportunity to improve patient care in modern clinical settings. Day surgery is a multidisciplinary concept, and an increase in this practice requires the input of many different groups and individuals, especially those with key experience in surgical and related specialities.[26]

One of the main initiatives of this agenda is to reduce waiting time for elective operations, implement a booking system, and also to introduce choice of treatment centers for patients, and this requires significant changes in the way surgery is practised.[10] Although diagnostic and treatment center initiatives will increase overall capacity to treat patients, there is still a need to treat more patients within the current system of overall surgical pathway, along with other more urgent cases, but at the same time give the elective day surgery cases their pride of place.[27]

In a study of 102 consecutive patients who had day case surgery, Fadiora *et al.*[23] revealed that day surgery provided satisfactory outcome for the majority of patients treated in a tertiary health institution in Nigeria and reported a low complication rate. Other reports include: Day-care plastic surgery in Nigeria: coping with limited resources,[28] Post-operative symptoms at home in children following day case surgery,[29] as well as Day case inguinal hernia surgery in Nigerian Children: Prospective study.[5]

However, Ojo *et al.*[30] carried out a prospective study to determine the scope and degree of utilization of day case surgery in a tertiary center in Nigeria and concluded that there was the need to harness all the resources and keep

abreast with all the technological drive to realize the full potentials of day surgery in developing countries.

Obalum *et al.* carried out a cross-sectional study of 72 cases of inguinal hernia treated by herniorrhaphy or herniotomy as day cases and suggested that day case surgery is particularly useful in treating inguinal hernia, which still remains one of the commonest presenting surgical problems in Nigeria and other developing countries.[2] In another study carried out by Nuhu and Samateh,[31] it has been observed that ligation excision hemorrhoidectomy can be performed successfully on out-patient basis, saving healthcare costs, and is therefore considered to be suitable for developing countries.

Other operations also commonly performed as day cases in Nigeria include adenoidectomy and tonsillectomy which are frequently done in ENT practices and are considered to be safe and cost-effective.[32] Furthermore, day case oral and maxillofacial surgery has been found to be safe and effective in Nigeria, provided adequate caution is exercised when operating on benign submandibular salivary gland neoplasms under general anesthesia.[33]

In 2004, Okeke reported a study involving 10 patients undergoing Trans-urethral resection of the prostate (TURP) and revealed that transurethral resection of the prostate can be safely performed as a day case, since the patients resumed spontaneous voiding on the same day of the operation.[34] However, these (TURPs) procedures are still not routinely performed as day cases in Nigeria due to logistic problems, as well as lack of adequately trained staff to deal with these patients postoperatively.

Overnight hospital admission is usually very distressing for children; therefore, day surgery is ideal for them. Pediatric patients should be treated on a separate list, or at least should be on the first part of any list, and separated from adults. Separate nursing areas and play facilities should be available, and the operations and care should be carried out by experienced professionals. In 2002, Amanor-Boadu[35] reported the effect of parental presence at induction of anesthesia on the behavior of unsedated Nigerian children presenting for day case surgery and suggested that this had a positive effect on the children and improved the anesthetic outcome. Other studies[18] revealed an equivalent ability by nurses compared to senior house officers in the correct identification of potential perioperative problems in children.

Finally, Usang *et al.*[27] reported day case inguinal hernia surgery in 88 Nigerian children and concluded that day case inguinal hernia repair was safe and well accepted by patients and parents. They also suggested that health institutions with long waiting lists need to adopt the concept of day case surgery in order to reduce the morbidity and complications as a result of delayed intervention. It was earlier reported that day care surgery should be strongly advocated in well-selected pediatric cases when the complications are within acceptable limits because it is very cost-effective.[36]

Although many of the Nigerian studies on day case surgery have emphasized the role of limited resources and facilities which prevent full implementation of this concept, most have failed to look at the general concept in their centers and levels of compliance with accepted or ideal practice elsewhere. Pediatric Surgery and General Surgery have the highest number of relevant publications on day case surgery; therefore, there is need for clinicians in other specialities in Nigeria to evaluate their day surgery practice and publish their findings. This will help to improve the quality of healthcare delivery to the Nigerian population, in addition to highlighting factors responsible for inadequate implementation of this concept.

Conclusion and Recommendations

Day case surgery is a very important concept which can be used to reduce the waiting time for elective operations, and helps clinicians and managers to prioritize and plan in-patients' treatments, as well as streamline resources to more urgent or appropriate cases. It needs to be incorporated in healthcare policy designs in Nigeria and other developing countries because it reduces the duration of hospital stay and cost, and ultimately increases productivity by reducing the total amount of time taken off work.

Mixing day cases with emergencies is not ideal because workload is more likely to be disrupted by major surgery and overflow of in-patient work, there may be disruption in an area where the dependency of patients is greater, and day surgery patients may be inadequately prepared for surgery and may therefore be discharged without the necessary knowledge and information required to care for themselves at home following discharge. Therefore, it is important that day surgery should not be carried out within a general surgical ward, and so, dedicated facilities should be provided for this purpose.

However, successful design and implementation are both capital intensive, and require lots of training and commitment on the part of staff and patients, in addition to a steep learning curve toward understanding the concept of ERAS. Most of the studies in Nigeria highlighted the lack of dedicated day surgery service, as the patients have to compete for time and ward space with more major elective and emergency procedures, leading to frequent cancellations. This is in addition to lack of adequately trained personnel to take care of the day surgery cases postoperatively.

Other problems include lack of funding from the policy makers, long distance away from health care services, poor transportation system, as well as lack of enthusiasm among surgeons and anesthetists in undertaking more major procedures as day cases because of fear of potential

complications following discharge. There is also a lack of infrastructure in the communities where patients need to be followed up by GPs. Unfortunately, there is no GP system in Nigeria compared to more developed countries; therefore, day case patients are usually taken back to the main hospitals where the original procedures were undertaken, even for minor complications or problems like postoperative nausea, vomiting, pain or minor bleeding. This can also divert the attention of healthcare professionals as well as vital resources away from more urgent cases.

Therefore, it will be very helpful for the healthcare providers and policy makers in Nigeria to help evolve a GP system, where these minor cases can be looked after in their communities following day case surgeries, without having to return to the hospitals. Improved transportation system, functional ambulance services, as well as good spread of healthcare facilities for easy access will certainly make a difference in promoting this concept.

In addition to that, there is also the problem of poverty, illiteracy, and inadequate communication system, especially in the rural areas of Nigeria, which can be a challenge to the concept of day case surgery. However, with the advent and proliferation of the Global System of Mobile (GSM) communications system in Nigeria since 1999, many people, even in the rural areas, have a mobile phone, which can be used to contact them for appointments at least using the text messaging service (SMS), which will be faster and even cheaper for the hospitals, as opposed to sending letters to patients to come in for elective day case procedures. In some cases, even if letters are sent to the patients, they may not get them quickly enough for the operation date and the patient may miss the procedure, leading to cancellations, postponements and further waste of valuable resources.

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How to cite this article: Abdulkareem IH. Day case surgery in Nigeria. Niger J Clin Pract 2011;14:383-9.
Source of Support: Nil, **Conflict of Interest:** None declared.