

## DAY CASE SURGERY AND DEVELOPING COUNTRIES- A REVIEW

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### ABSTRACT

**Background:** Day case surgery (DCS) is increasingly practiced all over the world but with a lag between the developed and developing continents. While it has witnessed a boom in the continents of America and Europe culminating in the establishment of Freestanding and autonomous units, the developing countries still largely practice hospital based day cases with relatively limited scope and utilization.

**Objective:** This article reviews the evolution, scope, safety, organisation including the standard necessary for establishing and practicing day case surgery and examines the practice in the developing world.

**Design:** Electronic literature search combined with review of both local journals and relevant texts.

**Outcome:** There is increasing need, applicability, potentials and relevance of day case surgery in the developing world with potential huge economic and social benefits.

**Conclusion:** As modern day case surgery practice requires dedicated services with meticulous attention equal to that given to in-patients, efforts should be focused on providing efficient services, in well structured centres, ploughing back resources to improve infrastructural/organisational deficiencies and acquiring relevant technology with skills in the developing world.

**Key Words:** day case, surgery, review, developing country.

### INTRODUCTION

Day case surgery (DCS) involves admitting patients for investigation or operation on a planned, non-resident basis with provision of adequate facilities for recovery in a ward or unit set aside for this purpose<sup>1</sup>

Patients were in the past, customarily admitted to hospital for all but the most trivial of surgical operations and remained until they are self-sufficient, ambulant and their sutures removed<sup>2,3</sup>. Reasons for this cautious admission policy include incomplete understanding of factors aiding wound healing, high anaesthetic and surgical complication rates, unavailable comprehensive health care in the community and sub-optimal home conditions for catering for patients. Increasingly however, factors responsible for this rigid admission policy no longer apply as the benefits of early mobilization after operation are well appreciated<sup>2</sup>. Several developments in surgery (including minimal access surgery) and interventional radiology also worked favourably to place DCS firmly on the agenda for practice and today, with broadened scope<sup>4</sup>.

### HISTORICAL PERSPECTIVES

Considered obligatory for wound healing, post operative bed rest up to 21 days was commonly enforced on patients in the past<sup>5</sup>. John Hunter described it as the most powerful aid the surgeon

could bring to disordered tissue while Hugh Owen Thomas stressed that such rest must be enforced, uninterrupted and prolonged<sup>5</sup>. This trend was later challenged by R. J. Asher and others who emphasised its disadvantages<sup>6</sup>.

Although DCS is historically traceable to biblical Egypt where day case circumcision was performed and anaesthesia achieved by a blow to the head or strangulation, the earliest published report of day care concept was from James Nicoll<sup>1</sup> in 1909 at Glasgow which was followed by opening of "Down Town Anaesthesia Clinic" a prototype of the modern freestanding centre for minor surgeries and dental cases in Sioux City by Waters R.M. in 1916<sup>1</sup>. Eric Farquharson in 1955 further popularized day surgery by reporting 485 patients successfully operated under local anaesthesia in Edinburgh and demonstrated uplifted patients' morale with all round accelerated recovery<sup>5</sup>.

Consequently, there was wider utilisation of day case and short stay surgery culminating in the establishment of hospital autonomous centres and free standing units first in USA and UK subsequently<sup>4</sup>. A policy for wider expansion of DCS was later formulated by Ruckley in 1985 when the Royal College of Surgeons of England published its first "Guidelines for DCS" which was revised in 1992<sup>1,4</sup>.

### SCOPE

Interest in DCS is on the increase world wide although there are wide variations among health facilities and consultants<sup>4,7</sup>. It is now available in all

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surgical specialties but to varied proportions<sup>4</sup> with subspecialties like Neurosurgery and Cardiac surgeries known to make limited use of DCS compared with others. For instance, the Urology and Gastroenterology units respectively managed the largest number of patients out of a total of 32,311 day cases seen over seven years at the Western General Hospital in Edinburgh while the Neurosurgery unit had the least<sup>8</sup>.

Table 1: **Specialties and Typical Procedures Treated as Day Cases.**

Indications/	Specialty	Procedure
<b>Diagnostic:</b>		
<b>Endoscopic:-</b> Oesophagogastroduodenoscopy, Sigmoidoscopy, Colonoscopy, Arthroscopy, Hysteroscopy, Urethrocystoscopy, ERCP, Bronchoscopy, Laparoscopy and Mediastinoscopy.		
<b>Radiological:-</b> Interventional radiology, Image guided biopsies/ aspirations, Contrast studies,		
<b>Tissue Biopsies:-</b> Open (Incisional, Excisional) and Needle biopsies.		
<b>Therapeutic:</b>		
<b>General Surgery- :</b> Hernia repair, Lumps excision, Varicose vein stripping/ ligation, Superficial parotidectomy, Anal dilatation or fissurectomy, Haemorrhoidectomy, Breast lump excision with auxiliary clearance, Partial thyroidectomy, Subcutaneous mastectomy, Laparoscopic Cholecystectomy/ Appendectomy/Herni orraphy.		
<b>Urology:-</b> Orchidopexy, Urethrotomy, Hydrocelectomy, Transurethral bladder tumour resection, Laser prostatectomy, Extracorporeal and endoscopic shock wave lithotripsy, laparoscopic varicocelelectomy.		
<b>Orthopaedics:-</b> Dupuytren's contracture excision, Carpal tunnel decompression, Ganglionectomy, Bunionectomy, Implants removal, Arthroscopic meniscectomy or shoulder decompression, Tenolysis.		
<b>Ophthalmology:-</b> Cataract extraction with/without implant, Squint correction, Eyelid surgery, Trabeculectomy.		
<b>ENT:-</b> Myringotomy, Tonsillectomy, Nasal fracture reduction, Bat ears operations, Rhinoplasty, septoplasty, Tympanoplasty		
<b>Oral/Maxillofacial Surgery -:</b> Wisdom teeth extraction, Submandibular gland extraction, Orthodontic treatment, Enucleation of small cysts, Salivary ductoplasty.		
<b>Plastic Surgery-:</b> Scar revision, Flaps debulking/revision, Mastopexy, Tattoes excision, Limited liposuction, Tendon repair/transfers, Synovectomy, Augumentation mammoplasty.		
<b>Paediatric Surgery- :</b> Circumcision,		
<b>Thoracic Surgery- :</b> Thorascopic sympathectomy,		
<b>Gynaecology- :</b> Diagnostic dilatation and curetage, Termination of pregnancy, Endometrial ablation.		

The occasional Neurosurgical cases seen were for investigations such as myelography and radiculography.

DCS has also been transformed from an exclusively paediatric operation of Nicoll's era to involve a wider range and conditions under various settings<sup>4,9</sup> (Table1). Even rural community based DCS has been reported<sup>10</sup>. The advent of minimally invasive surgery has been a major impetus in broadening the scope of DCS. Aimed at maximizing the benefits of DCS; the practice of emergency DCS has been advocated<sup>11</sup>. Although amidst initial reluctance, several developing nations' hospitals are now providing day surgery for diverse age groups with encouraging results<sup>12-14</sup>.

## ORGANIZATION OF DAY CASE SURGERY THE FACILITIES

DCS may be a hospital based or freestanding units<sup>15</sup>, a multidisciplinary unit which provide services for a wide range of operations in various surgical specialties or a unidisciplinary unit which provides services for only one specialty or procedure such as hernia repair, ophthalmic or orthopaedic surgeries. Most centres are however multidisciplinary as this offers a larger potential market. Available facilities include:

**1. Hospital Integrated Unit:** This share either the hospital operating theatre or recovery rooms for in-patients with day cases<sup>15</sup>. A '*day case ward*' setting provides a separate ward within the hospital for day case patients' recovery but mixes both in-patients and day cases operating sessions. Although this model uses the regular in-patient theatres, these can be used in various ways, ideally by setting aside one or more theatres for only day cases on a given day. This avoids mixing day cases and in-patients on a single operating list, but maintains flexibility in the equipping of theatres. When moving towards advanced day surgery, it means that the theatre is already appropriately equipped for, and the staff experienced in that procedure. An obvious example would be laparoscopic surgery, where the alternative would be to provide laparoscopic equipment in BOTH in-patient and day case theatres. Though a less desirable option, it may be acceptable for commencing DCS in district hospitals of developing countries. A '*general (in-patient) ward*' that mixes in-patients and out-patients in the same ward as well as their theatre sessions is however an unsatisfactory option and is not recommended.

**2. Hospital Autonomous Unit:** It is located on the grounds of a hospital but is self sufficient and independent of other portions of the hospital. It contains its own reception, operating and recovery areas, admission suites/ward, anaesthetic, consultation and changing rooms together with

administrative facilities<sup>15</sup>. Otherwise called a dedicated day surgery unit (DSU), it represents the ideal hospital based facility although as we move to very advanced day surgery, the duplication of equipment and skills, mentioned earlier can be problematic and expensive.

**3. Hospital Satellite Unit:** It is a facility operated and/or sponsored by a hospital but which is autonomous and situated away from the hospital campus<sup>15</sup>.

**4. Freestanding Unit:** This is a completely autonomous facility and is not geographically and administratively part of any other health care facility<sup>15</sup>. These are often used by managed health care systems and independent contractors.

**5. Office Surgical Facilities (OSFs):** They are individual surgeon's offices for practicing day surgery. It is currently undergoing standardization with guidelines intended to ensure superior qualitative care. Table 2 compares facilities for DCS. Although an autonomous, dedicated unit is the primary objective of practice, its size is determined by the pattern of the local surgical practice and the population served. Berrill used a 12 bed unit from a converted maternity ward<sup>16</sup>; Atwell et al operated in a 5 bed/cots unit and Bainey et al in a 24-bedded unit<sup>8</sup>.

#### **PERSONNEL / STAFFING**

Staffs are both medical and non-medical. Medical staff should include specialised nurses and consultant surgeons or anaesthetists who take responsibility for the unit daily running. All trainee surgeons and non-medical staff should be well instructed and capable of dealing with a high patient turn over. Proper understanding between the surgeons, general practitioners (GPs) and the community nurses is of utmost importance<sup>1</sup>.

#### **PATIENT SELECTION**

Good patient selection is crucial for success<sup>8,17,19</sup>. Poor selection leads to high admission rates after surgery and complications at home that require readmission. Selection is not simply a matter of choosing patients with conditions that may be treated on a day basis, but sifting out those who are unsuitable due to medical or social reasons. It should involve the consultants, GPs, junior medical staff, nurses and those familiar with the selection criteria. A pre-assessment clinic is an effective aid to proper patient selection<sup>2</sup>. Improved modern anaesthesia, operative approaches and post operative care has refined certain selection criteria, rendering some hitherto exclusion criteria less absolute. Age limit per se is no longer an absolute exclusion criterion. Awojobi et al reported patients aged two months to 85 years<sup>18</sup>. However, overtly elderly patients with chronic renal, cardiac or liver failure should be excluded. The upper age limit should be based on the biological rather than the chronological age<sup>1</sup>. The

lower limit depends on the facilities available, the experience of the staff and the procedure. While surgery and anaesthesia are undoubtedly more difficult and complicated in overweight patients, obesity alone should not be an exclusion criterion. Operations involving excessive blood loss or severe postoperative pain should be avoided<sup>15</sup>.

#### **THE OPERATION**

Since the standard of surgery in a day unit is expectedly high, the design, specifications and equipment of the operating theatre and recovery ward should be identical to the normal in-patient equivalent. Meticulous surgical techniques and proper consultant supervision is vital to success. Only experienced, fully qualified surgeons should perform and supervise DCS with strict adherence to surgical principles. The value of preoperative evaluation cannot be over-emphasised<sup>1,19</sup>. It is important that patients are operated at the beginning of the morning list and every effort be made to ensure that day cases are dealt with before mid-day to ensure early, safe and smooth discharge of the patients.

#### **ANAESTHESIA/ANALGESIA**

Day surgery requires the highest anaesthetic standards but there is no general agreement on the most suitable anaesthetic technique<sup>2</sup>. Various techniques have been used even for similar pathology with good effect. The essential requirements for a suitable technique include safety, rapid recovery and minimal postoperative problems. Irrespective of the choice of technique (local, regional or general anaesthesia), facilities must be available for reliable intra operative patient monitoring. Local anaesthesia is found suitable for minor and intermediate procedures like lumpectomy and herniorrhaphy<sup>5,13</sup> but may be problematic in children. Central (spinal/epidural) anaesthesia and regional blocks such as brachial plexus block, Bier's block could be employed when operating in the extremities.

The use of local and central/regional anaesthesia reduces the hazards and discomfort of general anaesthesia such as sore throat and airway trauma. Nausea/vomiting are less with faster patient discharge. The residual analgesia from the block may also protect the patient from the initial post operative pains.

The introduction of rapid onset, short acting anaesthetic agents has decreased the requirement for premedication but the chosen agent should also allow rapid recovery and minimal side effects as complications of anaesthesia such as vomiting, drowsiness and headache can be more distressing than the effect of operation<sup>1,2</sup>. The choice of anaesthetic agents and postoperative analgesia should be supervised by experienced, qualified anaesthetists and allow transfer from hospital to home to be very smooth<sup>2</sup>.

Table 2: Comparison of Facilities for Practicing DCS.

Facility	Advantage	Disadvantage
<b>Hospital integrated Unit</b>	*Requires less capital investment for commencement.	*There is more interference with day case schedule from in-patients. *There may be barriers to separation of staff and functions resulting in a less than ideal quality of care and cost effectiveness.
<b>Hospital Autonomous Unit</b>	*Provides greater satisfaction for personnel, patients and surgeons since everything is tailor-made.	*Conversion of facility to alternative use requires additional capital.
<b>Hospital Satellite Unit</b>	*Can provide day surgery near where the patient lives and a faster turn around of cases and higher patient satisfaction.	*Is located away from the hospital emergency back up facilities.
<b>Free-Standing Unit</b>	*The risks of nosocomial infections are reduced. *It provides avenue for physicians to practice DCS outside the control of hospitals business managers.	*High initial cost of establishment. *Requires larger storage and back up space. *Must have immediate access to beds in an in-patient hospital to transfer emergencies. *Adequate safe means of patient transfer (with portable ventilator and resuscitative equipment) must be available.
<b>Office Surgical Facilities</b>	*Can offer a more personal service to patients.	*There is worry over safety of some procedures presently and the need for standardization.

### DISCHARGE & FOLLOWUP

One must guarantee patients safety from the immediate post-operative period till the next appointment through appropriate discharge criteria (table 3). To ensure proper care patient's recovery is categorised into three phases. *Early recovery* starts from the discontinuation of anaesthetic agents until return of protective reflexes and motor function, *intermediate phase*, when the patient achieves criteria for discharge home and *late recovery* when he returns to his pre-operative physiological state.

Patients are conventionally monitored in the post anaesthesia care unit (PACU) during early recovery and discharged home after intermediate recovery. However, with the use of ultra short acting drugs, proper selection of patients and elimination of post-operative complications, fast tracking (a clinical pathway involving transferring patient from the operating room to the day surgery unit (DSU) and bypassing PACU) is being practiced with the aim of reducing nursing workload and cost while promoting improvement in the quality of care by focusing attention on getting patients back to their pre operative state as quickly as possible. This applies to patients that meet the fast tracking criteria using appropriate scores like Aldrete or White *et al* scores. Before discharge, the surgeon and the anaesthetist or their deputies must see the patient. Prompt patient accessibility to the hospital, good communication, effective

collaboration with community nurses/GPs as well as continuous auditing to improve the quality of care is invaluable<sup>26</sup>.

Table 3: Patients Discharge Criteria from Day Case Unit.

Alert and oriented to time and place
Stable vital signs
Pain controlled by oral analgesics
Nausea or emesis controlled
Able to walk without dizziness
Regional anaesthesia: block appropriately resolved
No unexpected bleeding from operative site
Given discharge instructions from surgeon and anaesthetist, and prescriptions
Patient accepts readiness for discharge
Responsible adult present to accompany patient home

### DAY CASE CANCELLATION

This refers to that proportion of patients scheduled for surgery whose procedures were annulled on the day of operation for whatever reason and is broadly due to either failure to arrive or cancellation after arrival at the DSU<sup>9</sup>. It is a way of assessing the efficiency of utilization of DCS resources and factors responsible for its suboptimal utilization. A high cancellation rate reflects suboptimal facility utilization.

Cancellations on the scheduled day of operation deny other patients on the long waiting list of a timely operation date and is also a waste of valuable manpower/scarcely resources for patients, their employers and the health care team alike. Hence, increasing rates must be stemmed.

As a means of improving this area of DCS, continuous auditing to determine the causes and patterns of cancellation is important for making appropriate recommendations. Reasons for cancellations include: patients absenteeism, absence of surgeons, upper respiratory tract infection, power outage, infrastructural problems and interruption of day case list by emergency operations/lack of operating time<sup>19,20</sup>.

Cancellation rates range from 10% to 36.4%<sup>19-21</sup> but most cases are notably preventable with improved operation room infrastructural facilities, better pre operative selection criteria and planning.

### **SAFETY**

Safety and patient satisfaction/acceptability are two critical issues in day surgery<sup>1,3, 17</sup>. Early criticisms about DCS relate to its safety/acceptability and include the possibility of inconveniences or hazards to patients from complications arising when discharged home, lowered standard of surgical practice and increased litigation to practitioners. Others are the issues of transfer or transferred cost to the GPs and opportunity cost. Safety can be gauged with parameters like the direct admission, readmission, postoperative complication and mortality rates<sup>17</sup>. Ensuring safety entails proper patient selection, performing procedures by qualified professionals, proper supervision of subordinates, adherence to standard and paying detail attention to the organization of day cases to limit admissions/readmissions, providing post discharge instructions to both patients and responsible adults escort and ensuring availability of readily accessible health facilities to manage complications arising when patient is at home<sup>17</sup>. Continuous investment in modern technology and requisite skills that drive DCS with auditing to identify areas for further improvement are essential<sup>17</sup>.

### **Direct admission (Conversion) rate**

Otherwise called unplanned overnight admission, it refers to that proportion of patients initially planned for day care who subsequently got admitted immediately after operation for any reason<sup>17</sup>. The rate varies considerably depending among other reasons on, the nature of the procedure, the selection criteria and the facility. The Royal College of surgeon of England initially recommended a rate less than 2-3% but currently, the overall rate (due to surgical, social or administrative, medical or anaesthetic complications) in most DCS centres averages 1%<sup>22</sup>.

Reasons for conversion could be procedure related such as extensive operation than anticipated, inappropriately booked cases and intraoperative adverse events like bleeding or significant organ injuries. Anaesthetic related reasons include nausea and vomiting, drowsiness while patient related factors could either be medical such as presence of comorbid diseases or social like lack of home support or escort back home. System related reasons for admission include organisational problems like late operations or delay in effecting the discharge protocols.

After a general surgery procedure, majority of conversion result from surgical complications, pain and anaesthetic reasons. The most common anaesthetic problem is post operative nausea and vomiting/dizziness<sup>23</sup>. Social and medical reasons are less common<sup>24</sup>.

Thus, the likelihood of unplanned overnight admission is related more to the type of anaesthesia and surgical procedure rather than the patient's clinical characteristics<sup>9,17,24</sup>. By audit reports, significant portions of admissions are avoidable by better patient selection.

### **Re-admission rate**

This refers to that proportion of day cases who were operated and discharged home as planned but got admitted back within 30 days for complications developed at home<sup>17</sup>. It has been advanced as quality indicator of day care services. Readmissions within 14 days post discharge is however regarded a better indicator since this excludes most coincidental readmissions unrelated to the day case procedure performed<sup>25</sup>. The suggested acceptable rate is 1 to 2%<sup>9</sup>.

Readmission rates vary with procedures but have been proven to be comparable to those of in-patients<sup>7</sup>. It includes 2% for general surgery<sup>26</sup>, 1% for hernia and varicose vein surgery<sup>7</sup> and 0.07% for orthopaedic surgery. In major ambulatory centres, it range from 1.1-1.5%<sup>27,28</sup>. It is possible to limit readmissions by proper attention to patient selection<sup>17</sup>. The common causes of readmission in general surgery include wound complications or sepsis.

### **Complication (Morbidity) rate**

A complication may be considered a major morbidity if it retards a patient's recovery more than if he had remained in the hospital; interferes with the planned postoperative discharge, necessitates readmission, involves the GP or district nurse in an excessive work load, or causes undue distress or anxiety for the patient or his relatives<sup>2</sup>.

There are varied methods of collecting information but of more relevance is the number of patients who need to seek help from their community nurse, GP or the hospital. Postoperative morbidity is related to the type of anaesthesia used and the surgery itself but the procedure is generally the most important predictor

of complications<sup>17</sup>. The overall reported complication rates once the patient has returned home ranged between 0.9% and 13%<sup>3</sup>. However, major morbidity with potential for serious harm or death is rare when patients are well selected<sup>9,12,29</sup>. While mortality and major morbidity are quite unusual, minor complications are more frequent<sup>9</sup>. Pain is identified as the commonest problem experienced in the immediate post operative period in many studies<sup>28,29</sup>, Yawe et al, however found postoperative vomiting as the leading complication followed by stitch abscess in children hernia repair<sup>30</sup> while wound infection, bleeding and significant wound breakdown respectively were the leading complication after a day case plastic surgery<sup>31</sup>. The pattern of complications thus depends on the nature of intervention and anaesthesia. In many instances the complication rates for day cases are found lower than in-patients for similar procedures<sup>17,32</sup>. This is not surprising as day surgery removes the patient from hospital environment and decreases sedentary complications such as deep vein thrombosis and hypostatic pneumonia.

#### **ACCEPTABILITY/SATISFACTION**

Patient satisfaction of DCS is viewed as a patient's reaction to his or her care and comprises of both cognitive and emotional responses. It measures the gap between patients expectation and actual experience and consequently, the provider's success at pleasing their clients in areas they put ultimate values<sup>9</sup>. It can be gauged by the number of unsolicited complaints from patients or from audit<sup>3</sup>. During audit, all aspects of the quality of care that impinge on patient satisfaction namely: the structure of the institution/DSU; the process that enables the services to be delivered; and the outcome of care must be assessed to have a valid result. This requires data collection at least on two different occasions; one in the immediate postoperative period for the first two aspects and the other around a month later, but may require a long follow-up evaluation up to about one year for operation like hernia repair<sup>9</sup>.

In well established units, patient satisfaction rates of well over 90% have been reported for day cases as far back as early eighties<sup>3,32</sup>. Older further demonstrated a 5% rise in satisfaction rate over a 5-year period, thus demonstrating how continued audit of results can improve the acceptability. At Kingston Hospital in Surrey in 1991, the percentage of patients registering a verbal or written complaint was 1.02% for in-patients and 0.04% for day cases<sup>3</sup>. DCS is well appreciated among patients and Health workers including GPs and community nurses<sup>26,32</sup>. During survey, only a quarter of these workers complained of increased workload<sup>3</sup>.

Modern DCS is increasingly demonstrated to create less workload for primary and community health services than in-patients. Day surgery patient satisfaction rates are high with the vast majority of patients treated preferring to repeat their procedures as day cases and those who had the same procedure both as in-patient and day case preferring to recover from surgery in the comfort of their own homes than in hospital<sup>5,26,32</sup>.

Centres with relative lack of infrastructures have demonstrated equally good patients satisfaction and acceptance in rural/semi urban and urban settings which goes a long way illustrating the practicability of DCS<sup>29</sup>. Reasons for patients' dissatisfaction include: long waiting time, frequent cancellations and development of complications

#### **BENEFITS AND DEMERITS**

Although DCS is not without criticism, it offers numerous benefits to the hospital, the staff, patients and the community. It shortens the hospital waiting lists, reduces costs and allows efficient use of resources including operating theatre time and facilities<sup>7,8,12,21</sup>. By moving work to a self contained day unit, in-patient beds can be released for more major surgical cases. Moreover a DSU yields itself as an admission ward in the event of mass casualties and its programme can be adjusted from time to time to give help to any specialty with difficulty<sup>16</sup>.

In well organised dedicated facilities, case cancellation is minimal with more accurate scheduling than for in-patient work.

In dedicated units, the patient is the centre of attention and receives more personalised care suited to their needs than if among more seriously ill in-patients. It allows short hospital stay, quicker recovery and early return to work/school thereby endearing itself to the hearts of businessmen and nursing mothers/parents<sup>26</sup>. It allows the nursing of children in their home environment which they are used to with minimal disruption to patient's life and less emotional stress to the child and the parents<sup>12,16</sup>. In our society where women contribute greatly to the economic survival of the family, it is a welcome development as it allows them the opportunity to meet other responsibilities and parents are very receptive to this approach<sup>21,30</sup>. There is tremendous benefits from day case practice to adults who are more prone to disorientation when removed from their familiar home environment. It minimizes the incidence of nosocomial hazards such as infections, cross infection, thromboembolism and pulmonary complications<sup>7,12</sup>. DCS is highly acceptable and popular among married nurses and auxiliary staff who wish to work during the day exclusive of weekends and night shifts<sup>8</sup>.

Expressed criticism include: possibility of complications arising while patient is at home with increased litigation, increased community work load, transferred cost to the GPS, high initial cost of setting up a DSU and morbidity from anaesthesia and surgery<sup>8,26</sup>. By removing fit and mobile patients and filling the wards with elderly or seriously ill patients, it was noted that DCS may radically change the nature of in-patient workload and place heavier demands on ambulance services, district nurses, GPs and relatives<sup>2,26</sup>. As good communication is essential it requires a high level of secretarial support<sup>8,26</sup>. Nevertheless, it has been succinctly shown that DCS is not associated with complication rates in excess of those encountered following in-patient surgery while the readmission rates and contacts with the primary and community healthcare teams are no greater than for the same procedures undertaken as an in-patient<sup>17,32</sup>.

### **DAY CASE SURGERY IN DEVELOPING WORLD**

Universal poverty makes the need for DCS more relevant in the developing continents. Besides conserving the individual patient's scarce fund by not paying for hospital stay, DCS when practiced with rapid patient turn over can generate fund which can be ploughed back to develop the health sector<sup>33</sup>. Furthermore, it will boost health reform programmes like the Health insurance scheme.

Utilisation of DCS in the developed world has exponentially increased, surpassing the initial projection of 50% of elective cases and is currently reviewed upwards to 75% of elective cases<sup>34</sup>. DCS is yet to be this prevalent in the developing world. Notable differences exist in the level of organization and coordination of DCS in the developing countries where existing practice utilises general wards or at best, day case wards. There are currently also no recognised specific bodies/organisations to directly formulate guidelines, supervise and further advance this practice as it is the case in Europe and America.

Efforts therefore, should now be geared at upgrading our existing facilities at various centres to at least dedicated units and setting of agenda for a wider embrace of day case practice. There is need to provide guidelines for day case practices that will set in motion the emergence of freestanding units in the nearest future while keeping in view the prospects of the day case surgical offices. Our hospitals and health ministries should be encouraged to invest in day case practice by sponsoring the establishment of hospital autonomous facilities. As efforts are being directed at curtailing the menace of Malaria, HIV/AIDS, Tuberculosis, Child/MATernal health and other communicable diseases, other promising aspects of the health sector like day case practice should not be neglected<sup>15</sup>.

Our centres not currently practising DCS should be encouraged to do so. Despite our peculiar circumstances such as the non availability of the collaboratory services of the GPs and the Community Nurses (the health visitors), they should always ensure safety by adherence to proper patient selection, good

supervision of procedures/patient discharge and improved organisation. They should be inspired by the impressive and commendable results from various centres currently practising DCS despite the peculiarities<sup>12-14,17</sup>.

There is also a wide gap in the scope of day case practice between the developing and the developed world where specialised day case procedures such as endocrine surgery, laproscopic herniorraphy, fundoplication, cholecystectomy are in vogue even in a free-standing settings<sup>35</sup>. This disparity stems mainly from technological gap in the areas of minimal access surgery, interventional radiology, developments in modern anaesthesia and refined management of postoperative pain which have led to the development of better operative approaches and broadened scope of practice. There is the need for relevant technological investments to fully explore all areas of day case practice.

Manpower development and infrastructural deficiencies such as poor transportation, communication, water supply and power outages are also central issues. Improvement of the quality and scope of our DCS demands appropriate manpower development. Consultants, residents, and other staff should be properly trained in the requisite skills and the acquired skills be made relevant by providing them with necessary working tools and facilities. The gains from day case practice should also be judiciously utilised and ploughed back for other infrastructural developments. Continuous auditing should be part of our practice for added improvement.

Finally, our challenges should not be our deterrents and it must be borne in mind that social conditions in Glasgow where Nicoll pioneered DCS were not as at then as optimal as it is today<sup>1</sup>. Specialised day surgery is feasible in the developing countries with a proper focus<sup>36</sup>. We should brace up and rise to the challenges.

### **CONCLUSION**

DCS is appealing all over the world. Its socio-economic advantages and prospects for improved services are of particular relevance to the developing countries. We need refinements and innovations to ensure qualitative practice. Dedicated services, meticulous procedures and proper organization are springboards in realising the notable goal.

### **REFERENCES**

1. **Godwin APL, Ogg TW.** Preoperative preparation for day surgery. *British Journal of hospital medicine* 1992; 47: (3) 197-201.
2. **Ruckley CV.** Day care and short stay surgery for hernia. *Br J Surg* 1978; 65:1-4.
3. **Jarrett PEM.** Provision of a day surgery service. In: Johnson CD, Taylor I. (Eds). *Recent advances in surgery: Churchill Livingstone, Edinburgh* 1994; No 17: 49-64.

4. **Ojo EO, Ihezue CH, Sule AZ, Ramyil VM, Misauno MA.** The scope and utilization of day case surgery in a developing country. *EAMJ* 2007; 84(5):200-206.
5. **Farquharson EL.** Early ambulation with special reference to herniorrhaphy as an outpatient procedure. *Lancet* 1955; 2: 517-519.
6. **Asher RAJ.** The dangers of going to bed. *Br Med J* 1947; 2 :967-968.
7. **Henderson J, Goldacre MJ, Griffith M, Simmons HM.** Day case surgery: geographical trends and readmission rate. *J Epidemiol Community Health* 1989; 43:301-305.
8. **Rainey JB, Ruckley CV.** Work of a day-bed unit 1972-8. *Br Med J.* 1979; 2: 714-717.
9. **Paulo Lemos, Ana Margarida Regalado.** Patient outcomes and clinical indicators for ambulatory surgery. In: Paulo Lemos, Paul Jarrett, Beverly Philip (Eds). *Day surgery -Development and practice.* International Association for ambulatory surgery 2006; 257-280.
10. **Akinsola FB, Majekodunmi A, Obowu CB, Onakoya AO.** Day case Eye surgery: Rural Community Experience. *Nig J Surg.* 1996; 3:33-37.
11. **Conaghan PJ, Figueira E, Griffin MAS, Ingham CCL.** Randomized clinical trial of the effectiveness of emergency day surgery against standard inpatient treatment. *Br J Surg* 2002; 89: 423-437.
12. **Adejuyigbe O, Abubakar AM, Sowande OA, Olasinde AA.** Day case surgery in children in Ile-Ife, Nigeria- An Audit. *Nig. J. Surg.* 1998; 5(2):60-63.
13. **Archampong EQ, Darko R.** Day Surgery at Korle Bu Teaching Hospital: A six year review. *West Afr J Med* 1996; 15(3): 143-148.
14. **MAM Ibnouf, Mohamed Mahmoud, Yosif A Abdulgadir, Ali A Salama, El Tayb El Amri.** Day case laparoscopic cholecystectomy in Sudan. *Sudan Journal of Medical Sciences* 2006; 1(1): 48-51.
15. **Kakande I, Nassali G, Kituuka O.** Day Care Surgery: The Norm for Elective Surgery. *East and Central African Journal of Surgery* 2005; 10 (2): 1-4.
16. **Berrill TH.** A year in the life of a surgical day unit. *Br Med J* 1972; 4:348-349.
17. **Ojo EO, Ihezue CH, Sule AZ, Dakum NK, Misauno MA.** The safety of day case surgery in a developing country. *The Journal of One-Day Surgery* 2008; 18(1): 13-18.
18. **Awojobi OA, Sagua AC, Ladipo JK.** Outpatient management of external hernia: A district hospital experience. *West Afr J Med.* 1987; 6(3/4): 201-204.
19. **Bode CO, Adeyemi SD.** Reasons For Day Surgery Cancellation In Paediatric Surgical Practice At The Lagos University Teaching Hospital. *Nig J Surg.* 1996; 3(2): 41-44.
20. **Ojo EO, Ihezue CH.** An audit of Day Case Cancellations in a Tertiary Hospital Based Day Case Unit *East and Central African Journal of Surgery* 2008; 13(2): 150-153.
21. **Ramyil VM, Dakum NK, Kidmas AT. et al.** Reasons for day case surgery cancellation in Jos. *Nig. J. Surg.* 2004; 10 (1):17-19.
22. **Deutsch N, Wu CL.** Patient outcomes following ambulatory anesthesia. *Anesthesiol Clin North Am* 2003; 21: 403-415
23. **Awad IT, Moore M, Rushe C, Elburki A, O'Brien K, Warde D.** Unplanned hospital admission in children undergoing day-case surgery. *Eur J Anaesthesiol.* 2004; 21(5):379-383.
24. **Gold BS, Kitz DS, Lecky JH, Neuhaus JM.** Unanticipated admission to the hospital following ambulatory surgery. *JAMA* 1989; 262: 3008.
25. **Chin KH, Gurjar N, Doug M.** Readmission after Day Surgery, Time for Re-evaluation? *The Journal of One-Day Surgery* 2004; 14(4): 105-107.
26. **Ruckley CV, MacLean M, Ludgate CM, Espley AJ.** Major outpatient surgery. *The Lancet* 1973; 1193-1196.
27. **Mezei G, Chung F.** Return hospital visits and hospital readmissions after ambulatory surgery. *Ann Surg.* 1999; 230(5):721-7.
28. **Coley KC, Williams BA, DaPos SV, Chen C, Smith RB.** Retrospective evaluation of unanticipated admissions and readmissions after same day surgery and associated costs. *J Clin Anesth.* 2002; 14(5):349-53.
29. **Agbakwuru EA, Faponle AF, Adesunkanmi AR, Ogundoyin O.** Practice and acceptance of day care surgery in a semi-urban Nigerian hospital. *East Afr Med J* 2001; 78(4): 170-173.
30. **Yawe T, Dogo D, Abubakar Y.** Day case surgery: Experience with inguinal and abdominal wall hernias in children. *Nigerian Med. Practitioner* 1997; 33 (3/4): 31-32.
31. **Jiburum BC, Akpuaka FC.** Scope and problems of day care surgery in a plastic surgery unit. *West Afr J Med.* 1996; 15(4) 237-239.
32. **Baskerville PA, Jarrett PEM.** Day case inguinal hernia repair under local anaesthetic. *Ann R Coll Surg Engl.* 1983; 65: 224-225.
33. **A case for day-care surgery.** The Editorial. *East Afr Med J* 2001; 78(4): 169.
34. **Aylin P, Williams S, Jarman B, Bottle A.** Trends in day surgery rates. *Br Med J* 2005; 331:803.
35. **Gagné JP, Al-Obeed O, Tadros S, Moonje V, Yelle JD, Poulin EC.** Advanced Laparoscopic Surgery in a Free-Standing Ambulatory Setting. *Surgical Innovation* 2007; 14(1):12-17.
36. **Bal S, Reddy LGS, Parshad R, Guleria R, Kashyap L.** Feasibility and safety of day care laparoscopic cholecystectomy in a developing country. *Postgrad Med J* 2003; 79:284-288.