

Editorial

Does day surgery still need promoting?

Those involved in day or ambulatory surgery over the years are well aware of its benefits and what can be achieved by its substitution for inpatient surgery. It offers the same number of cases for a reduced cost or more cases for the same cost. In general, patients prefer ambulatory treatment, patient satisfaction rates are high and complication rates are the same or lower than those for the same procedures undertaken on an inpatient basis. Day surgery cases are not cancelled at the last moment because their beds are occupied by unexpected emergency cases. Thus, surgical procedures can be booked well in advance with fixed times and dates which benefits planning for patients, doctors and managers. Day surgery can also offer a cost effective solution to the problem facing many nationalised or public healthcare systems of a lack of inpatient facilities available to deal with the rapidly increasing number of elderly patients. A move to day surgery can free inpatient beds thus reducing capital expenditure on new inpatient facilities. In the private sector specifying day surgery for certain procedures can help to contain the cost of medical insurance.

These benefits of day surgery would seem simple enough, but have they been widely understood and taken advantage of? The answer is they are increasingly understood but nowhere used to their full potential. Certainly there are an increasing number of countries in the world practising or developing day surgery. This is reflected in the membership of the IAAS which has risen from nine countries at its foundation in 1995 to 21 countries today. However, there are many countries in the world that show little or no interest. Yet many of these such as China, India, Brazil and some African countries with large populations and low per capita income could benefit from the cost effectiveness of day surgery. Equally there are countries with strong economies and members of the G7 economic group who have blinkers on when it comes to the economics of healthcare. In Germany the volume of day surgery is small and at best stationary though probably falling and in Japan, apart from a small group of enthusiastic

anaesthetists promoting day surgery, there is very little interest.

Even in countries where the purchasers of healthcare support day surgery and where day surgery rates appear high, all is not what it seems or could be. Overall rates for day surgery of over 65% are claimed in the USA and 62% in England (1997–1998). Yet a general surgery board review textbook from the USA in 1999 states that an overnight stay is required following varicose vein surgery and in that country laparoscopic cholecystectomy is frequently undertaken with a 23 h stay. It is difficult to equate this with the claimed overall day surgery rate unless this global figure includes 23 h stays. Similarly in England only 30% of inguinal hernias, 45% of varicose veins and 64% of cataracts were dealt with on a day basis in 1997–1998. To reach the overall day surgery rate of 62% surely minor cases and endoscopy must be included.

In nearly every country there is the individual surgeon or day unit that achieves the highest day surgery activity. Yet overall in every country in the world there is a lot of room for improvement in day surgery activity and nowhere has day surgery reached its full potential. In the USA if 23 h stays were reduced to the length of a normal working day, substantial savings could still be made. Achieving reasonable high day surgery rates for common procedures would be beneficial in England. For instance, if day care rates were increased for inguinal hernia repair from 30 to 80% and for cataract surgery from 64 to 95%, \approx 200 and 300 beds could be released, respectively. To put it another way, Dr Claude De Lathouwer said in 1995 at the third World Conference on surgical efficiency and economy in Kiel, if a country increased its day surgery rate by < 5%, the savings would pay for that country's transplant programme. Yet at the same meeting, one concentrating on economics, 3 h were spent discussing day surgery with its potentially large savings and 3 days on how to shave costs off major inpatient surgery.

It is clear that those involved in day surgery still have a promotional job to do. All day surgery organisations

need to continually repeat the benefits that day surgery can offer. Governments, including those who falsely believe they have maximised the benefits of day surgery, international aid organisations, such as the World Bank, the WHO and regional organisations such as the European Community, all need to be targeted. At the same time, specialist surgical organisations must have demonstrated to them the advantages that increased day surgery can give them.

Eighty percent of day surgery rates for elective work are possible today without any new developments. Continued growth in day surgery offers those involved in purchasing and managing healthcare the

greatest potential to contain costs and thus provide the broadest possible surgical care to their patients.

One's own familiarity with the benefits of day surgery does not mean that the majority of those in healthcare understand its potential. The advantages of a move to day surgery will need constant promotion for some years to come.

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Meeting report

British Association of Day Surgery Clinical governance

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The management focus in the Health Service is continually shifting with day-surgery getting the greatest attention in the early 1990s. The Royal College of Surgeons made the case for day surgery, the Department of Health put up money for purpose-built units and appointed committees to write operational guidelines, and hospital managers would include the development of day surgery in their business plan and hope to boost their performance-related pay by doing so. The public watchdog, the Audit Commission, looked at what was done in *All in a day's work* and also surveyed patient experience. There was a lot to do; much was happening. So when the Audit Commission took stock again it was able to report earlier this year that the median level of activity now exceeds the upper quartile of what was achieved in 1991. What has not changed is the range of activity. Whether you look at hospitals, surgical specialties, surgeons or procedures the variation generally runs from 10 to 90% suggesting there is more still to be achieved.

But for most managers day surgery is yesterday's story. The colloquial description would be 'been there, done that and got the T-shirt'. So what the Association has to do is reinvent the day surgery theme in terms of New Labour's programme and priorities for a 'New NHS: modern and dependable'. This has come at the right time for the Association and is being tackled in a number of ways. It is timely because the Association was needing to change anyway. For a decade the Association has helped people to get started through advice, any number of educational events and publication of the journal *One Day Surgery*. There are now comparatively few departments starting up and though the established departments still have new recruits each year the 'How to do it' theme now seems rather played

out. This was accentuated when those developing the new techniques in minimally invasive surgery decided to have their own association. So what will the new future be?

The starting point is the perennial problem we have with waiting lists. Perhaps the best remembered of all the Government's pledges at the last election was that they would reduce waiting lists by 100 000. This has proved more difficult to achieve than they had anticipated and whereas they may at one time have hoped that ridding the service of the Thatcherite marketplace and pulling together once again as a single team would achieve the necessary spurt in activity, they can now see this is not going to happen. With 2 years to go to the next election manipulation is rearing its ugly head. In future skin lumps and bumps will not be counted as surgical cases and cannot therefore be counted as on a surgical waiting list even if there is a delay of weeks or months before they are removed. Managers are worried if their waiting list numbers have risen so there is every reason to hide a few names in a locked drawer until the census date has past. But if you actually want the total number on the waiting list reduced, an increase in day surgery is likely to be the most efficient and cheapest way to achieve it.

Another boost to day surgery activity was produced by the winter pressures, the surge in medical emergency admissions which could only be coped with by requisitioning surgical inpatient beds. Surgeons could only find space for surgical emergencies and cancer patients, all their other elective work having to be postponed. For many the only elective activity that continued was in the day surgery unit. For some even this was stopped when day surgery trolleys were pressed into action for exacerbations of bronchitis and mild strokes. Not only

was the trolley uncomfortable, the day surgery unit did not have the bathing and feeding facilities needed for inpatient care. For the first time advantages in free-standing day surgery units could be seen. With no physicians on site, medical patients cannot be looked after. Cover from a neighbouring hospital is not thought to be adequate and there are not enough physicians to form a new team posted to the day surgery unit. It is less convenient for surgical staff to travel there but at least they can keep working.

As well as these political and practical imperatives, the Government's programme also has new opportunities. Up till now the chief executive's pre-eminent responsibility has been to balance the books. Now similar attention is to be given to the quality of care in a process generically described as 'clinical governance'. In reporting on the care given in the hospital, the chief executive will be nervous of the comparisons that may be made with neighbouring hospitals or similar hospitals elsewhere in the country. Errant figures in the statistics will have to be defended and recourse will almost certainly be made to differences in the complexity and severity of the diseases and the risks inherent in curative rather than palliative care. For major illnesses and emergency care there is likely to be genuine uncertainty. Ignorance at a higher level is not however a vote winner so this could be an opportunity for day surgery. Almost by definition day surgery is focused on single, not complex conditions and care is taken to select out any patients whose recovery may not be straightforward. Apply clinical governance to this large volume of work going right first time and you could be on to a winner!

Everything will not of course be perfection but here is the second advantage. Many regular problems are likely to have a single cause more easily identified and rectified than difficulties in the main hospital. With any luck examples of successful action resulting from the Government's initiative should be available. Ministers would only be human if they warmed and responded to such success.

But the first thing of course is to achieve it. With this in mind the Association has launched two initiatives, one aimed at interpreting and taking action on the routinely available hospital statistical data; and secondly the development of a questionnaire giving, as the lawyers put it, fuller and better particulars of what is happening. The first scheme will at first be the more comprehensive covering over 120 units in the United Kingdom while the second questionnaire approach will concentrate on 50 day surgery units with dedicated wards and theatres in its first and pilot year.

Our fourth opportunity comes with the developments in primary care. The Government wants to see general practitioners and the clinicians who work with them forming first into groups and later into trusts to take financial responsibility for planning and provisioning healthcare. There are already a small number of general practitioners who have developed the facilities and received the training appropriate for a number of day surgery techniques. It is largely rhetoric at this stage but fired with an ambition which suggests that the interface between primary care, community hospitals and acute hospitals will be actively explored. Projects designed to examine these relationships with outcome, risk and patient preference to the fore should attract funding.

Our final major theme will take up issues regarding the ethics of day surgery. Pragmatism and expediency are sometimes the explanation given for actions which in principle are at least debatable. At our last Annual Scientific Meeting a room of 50 people were asked whether there was a surgeon in their unit to whom they would not send a relative for a day surgery operation. A third said yes, none had done anything about it — but then someone has to do the work!

The British Association of Day Surgery has a busy year ahead and hopefully in 2000 there will be achievements to report.

Meeting report

American Society of Anesthesiologists Annual Meeting, October
9–13, 1999

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At the Annual Meeting of the American Society of Anesthesiologists held in Dallas, TX, on October 11th, the Society for Ambulatory Anesthesia presented a Breakfast Panel Discussion featuring ‘State of the Art and Future Perspective in Ambulatory Anesthesia.’ Following introductory remarks by Richard A. Kemp, M.D., President of the Society for Ambulatory Anesthesia, Kathryn E. McGoldrick, M.D., Professor of Anesthesiology at Yale University School of Medicine and Medical Director of Ambulatory Surgery at Yale-New Haven Hospital, moderated the session.

Barbara S. Gold, M.D. (Assistant Professor, University of Minnesota, Minneapolis, MN) presented an overview of ‘The Sleep Apnea Patient for Outpatient Surgery.’ Sleep apnea is defined as episodes of cessation of respiration for at least 10 s, occurring a minimum of 11 times per h during sleep. Sleep apnea can be central, obstructive, or mixed in etiology. Of the millions of people who snore, only a small portion have sleep apnea. Although obstructive sleep apnea (OSA) affects between 1 and 4% of middle-aged adults, the overwhelming majority of those with OSA go undiagnosed. There is, moreover, a propensity for OSA to occur in males. Screening evaluation should include questions about sleep habits, excessive daytime sleepiness, use of alcohol or other depressants, and the snoring pattern. Characteristically, the patient is unaware of the snoring, but his or her partner will typically describe extremely loud snoring with repetitive pauses in breathing from 10 s to 2 min in duration, accompanied by sudden gasps and choking noises as breathing resumes. Because it is awakening that permits breathing, the snorer will experience minimal or no REM sleep and, therefore, remains fatigued throughout the day.

Central sleep apnea is also known as Ondine’s curse, reflecting the mythological man who was condemned by his rejected lover, a mermaid, to stay awake in order to breathe. Respiratory efforts temporarily stop in central sleep apnea, an entity considerably less common than OSA. A diagnosis of central sleep apnea is established with polysomnography, whereby the patient spends the night in a sleep laboratory and all phases of sleep, including REM, are observed during extensive monitoring. Central sleep apnea is confirmed if episodes of absent airflow, resulting from cessation of respiratory efforts, are detected.

OSA is the most common sleep disorder and is the variety of apnea that is frequently associated with severe, loud snoring. Factors that affect upper airway anatomy, such as micrognathia, acromegaly, obesity, or adenotonsillar hypertrophy, or airway muscle tone (myotonic dystrophy and certain neuromuscular diseases) predispose to OSA. Use of sedatives, neurologic disease, and primary pulmonary disease may exacerbate the effects of the obstruction. With prolonged apnea, the resultant hypoxemia and hypercarbia produce increased systemic and pulmonary artery pressures as well as increased likelihood of dysrhythmias. Cor pulmonale, polycythemia, and congestive heart failure can develop. As with central sleep apnea, the diagnosis is confirmed by polysomnography. In contradistinction to central sleep apnea, however, the episodes of apnea and hypoxemia coincide with paradoxical movements of the rib cage and abdomen that produce little or no air movement. (Although polysomnography is the diagnostic gold standard, it is extremely expensive and, in these days of medical fiscal restraint, diagnosis is often based on history.)

The anesthetic implications of sleep apnea depend to a large extent on the anatomy of the airway as well as the presence or absence of such associated conditions as

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obesity, congestive heart failure, neuromuscular disorders, pulmonary disease, and hypertension. The feasibility of intubation (and extubation) must be carefully assessed; the patient should be extubated only if he is wide awake, strong, and fully reversed. Postoperative pain relief should be provided with non-narcotic analgesics because these patients are exquisitely sensitive to the respiratory depressant effects of narcotics. Moreover, whenever possible, monitored anesthesia care (MAC) or regional anesthesia may offer several advantages over general anesthesia.

Are these patients with sleep apnea appropriate candidates for outpatient surgery? Dr Gold emphasized that here we are traversing uncharted waters. Whether to admit these patients after surgery should be based on the type and duration of the anesthetic, the site and nature of the surgical procedure, the drugs necessary to afford postoperative analgesia, and the severity of the patient's apnea and associated conditions. Clearly, sleep apnea patients should be observed carefully for apnea in the postoperative period with continuous pulse oximetry for an extended period. Even if same-day discharge is deemed feasible, it may be prudent to observe the patient for 12 h in the postanesthesia care unit (PACU).

Lydia Conlay, M.D., Ph.D., M.B.A. (Professor and Chair of Anesthesiology, Temple University Health Sciences Center, Philadelphia, PA) discussed 'Optimal Fast-Tracking Techniques.' Fast-tracking is defined as the ability to bypass the Phase I recovery unit and go directly from the operating room to the Phase II recovery area. Dr Conlay emphasized that new drugs, new instrumentation, and effective postoperative pain management have contributed enormously to our success in providing a smoother, more truncated recovery course for ambulatory patients. Indeed, some studies have suggested that currently we are able to fast-track as many as 40% of patients having general anesthesia and 80% of patients having MAC or regional anesthesia.

Propofol, a relatively short-acting drug with antiemetic properties, has been a valuable addition to our anesthetic armamentarium. Propofol can be used to induce and maintain general anesthesia or, in lower doses, to provide sedation during MAC. It affords a smooth, rapid, clear-headed emergence, typically with minimal postoperative nausea and vomiting (PONV). Similarly, the inhalation agents, desflurane and sevoflurane, also facilitate rapid emergence from general anesthesia owing to their extremely low blood–gas partition coefficients.

Use of a laryngeal mask airway instead of an endotracheal tube in appropriate patients who are not at risk for gastroesophageal reflux permits the anesthesiologist to use a lighter level of anesthesia than is required with endotracheal intubation, thereby facilitating more rapid emergence. Likewise, bispectral index (BIS) moni-

toring enhances assessment of anesthetic depth and favors speedy emergence.

The use of antiemetic prophylaxis in selected high-risk patients is often helpful in decreasing length of PACU stay, as is effective pain management. The latter typically consists of a pre-emptive, multimodal approach to analgesia, incorporating opioids, local anesthetics, and other adjunctive therapy such as nonsteroidal anti-inflammatory drugs or α_2 agonists. Moreover, although desflurane and sevoflurane provide rapid emergence from anesthesia, to date their use has not been associated with faster discharge from the ambulatory unit than is seen with isoflurane. Whether this reflects lack of a true difference among the inhalation agents or merely inertia in the system remains to be determined. In this context, Dr Conlay emphasized the importance of organizational 'buy-in' if we are to expedite the postoperative course of ambulatory patients.

Himat Vaghadia, M.D. (Associate Professor, University of British Columbia, Vancouver, Canada) spoke on 'Walking Spinal is an Art.' During the past 5 years, Dr Vaghadia has investigated the use of low-dose subarachnoid lidocaine for intraoperative anesthetic management of patients undergoing laparoscopic surgery, the seventh most common operative procedure performed world-wide. Dr Vaghadia believes this technique is associated with minimal PONV, negligible postdural puncture headache (PDPH), and efficient discharge from the PACU. Although conventional doses of spinal bupivacaine or tetracaine may delay discharge for more than 5 h owing to urinary retention, Dr Vaghadia's method typically allows for discharge home in approximately 2 h or less.

The technique, described as selective spinal anesthesia, provides pin-prick analgesia only and no motor blockade. With the patient in the sitting position, a 27-gauge spinal needle is inserted into the lumbar subarachnoid space; the needle orifice is pointed cephalad and 10 mg of 1% lidocaine with 10 μ g sufentanil is injected. The reverse Trendelenburg position is used owing to the hypobaric nature of the local anesthetic solution. The patient is, however, placed flat during the 3-l gas insufflation period. Patients are characteristically quite comfortable during the procedure; midazolam 1–2 mg i.v. is given as needed and 250 μ g alfentanil i.v. is administered for shoulder pain. Analgesia to a T₈ level is typically reported. Recovery is characteristically rapid and uneventful, unencumbered by PONV, urinary retention, motor weakness, PDPH, or transient neurologic symptoms.

The final panelist was Janet Pavlin, M.D. (Associate Professor, University of Washington School of Medicine, Seattle, WA) who addressed the question of 'How Can We Prevent Prolonged Stay in the Ambulatory Surgical Unit?' Dr Pavlin began her discussion by

noting that discharge time is affected by a plethora of factors, including the type and duration of surgery, the anesthetic technique selected, and the quality of PACU nursing care. Such complications as pain, drowsiness, PONV, and urinary retention frequently retard discharge. System factors, however, may also be responsible; the prototypical example of the latter is the unavailable escort!

Although MAC and administration of peripheral nerve blocks are often associated with faster discharge, there is no guaranteed magic bullet. However, the anesthesiologist should be aware that certain types of anesthesia, surgery, opioids and other analgesics, anticholinergics, and underlying medical conditions may predispose to postoperative urinary retention. Urinary retention is not uncommon after gynecologic surgery (4%) and is indeed frequent after hernia (18%) or anal (25%) surgery. High risk patients, therefore, include those having spinal or epidural anesthesia, those with a history of postoperative urinary retention, or those having hernia or anal surgery.

Dr Pavlin has done studies monitoring bladder volumes by ultrasound. Interestingly, the majority of patients with bladder volumes exceeding 600 ml were unaware of having a very distended bladder. Although Dr Pavlin does not believe that low-risk ambulatory

patients should be required to void before discharge, she strongly believes that high-risk patients should be required to urinate or be catheterized before discharge to avoid prolonged overdistention of the bladder after discharge. Moreover, patients in all risk categories should receive fluid in judicious amounts to avoid overdistending the bladder. Excessive fluid administration does not appear to hasten the onset of voiding, but rather increases bladder volume so that retention may be more likely. Anesthesiologists should be aware that animal studies suggest that overdistention persisting for as few as 4–24 h can be associated with a reduction in the number of cholinergic receptors in the bladder wall and subsequent impairment of contractile function. Therefore, all patients should be cautioned to return to a medical facility if unable to void within 8–12 h of discharge.

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Cost-effective anaesthesia for outpatient arthroscopic knee surgery: spinal, desflurane, isoflurane or propofol anaesthesia?

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Abstract

Spinal anaesthesia (SA) is widely used in day surgery because it is easy and cheap. But how cheap is SA really, when compared to modern general anaesthesia with short-acting agents? The aim of this study was to compare SA to three modes of general anaesthesia in terms of the total costs of anaesthesia during outpatient knee arthroscopy (KA). There were 173 patients scheduled for elective KA randomised to receive SA with lidocaine, propofol infusion (PA), isoflurane (IA) or desflurane (DA) inhalation anaesthesia. The time spent in the operation theatre (OT) and the time to reach home readiness after postoperative care in the recovery unit (RU) were measured. The material and salary costs for the different anaesthetics were calculated. The total costs for IA and DA were significantly lower ($P < 0.05$) than those for SA or PA. Inhalation anaesthesia, with either isoflurane or desflurane, is more cost-effective than SA or PA in elective ambulatory KA. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Ambulatory anaesthesia; Cost-effective anaesthesia; Desflurane; Home readiness; Isoflurane; Knee arthroscopy; Propofol; Spinal

1. Introduction

The practice of ambulatory anaesthesia, in common with the other aspects of health care, is subject to pressures on cost containment, as costs need to be balanced against the benefits of the new medical technologies and practices. Economic evaluations help to assess the likely impact on costs and outcomes following the introduction of new anaesthetic agents and practices in a cost-constrained environment.

There has been only a limited number of published economic evaluations of anaesthesia and its wider impacts on total procedural costs [1–6]. This may reflect the low proportion of institutional budgets accounted for by anaesthetic costs. However, anaesthetic agents particularly short-acting agents, can be expected to affect hospital budgets, not only in terms of usage and price but also in terms of their effects on patient recovery profiles and related patient management costs. Although the costs of anaesthetic agents may constitute only a small proportion of the total cost of a typical

day-care episode [7–9], it is necessary to assess the financial impact of all potential resource cost drivers at each stage of the surgical process in order to determine the relative importance of anaesthesia decisions in the management of total procedural costs.

Spinal anaesthesia (SA) is widely used in day surgery because it is easy and cheap. But how cheap is SA really compared to modern general anaesthesia with short-acting agents? The aim of this study was to compare SA to three modes of general anaesthesia in terms of the total anaesthesia costs during outpatient knee arthroscopy (KA).

2. Methods

2.1. Patients and methods of anaesthesia

A total of 173 patients (ASA I or ASA II, age under 65 years) scheduled for elective KA were randomised to receive SA with lidocaine, propofol infusion (PA), isoflurane (IA) or desflurane (DA) inhalation anaesthesia. Informed consent was obtained from each participant and the protocol was approved by the Ethics Committee of the Medical Faculty, University of Oulu.

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SA ($n = 55$) was administered with lidocaine 50 mg/ml in 7.5% glucose 1.5–2.0 ml through a 27 gauge needle. The block was performed laterally through the lumbar III/IV space with the patient lying on the side to be operated. PA ($n = 32$) was anaesthetised with propofol, starting with a bolus 2 mg/kg i.v. followed by continuous infusion of 12 mg/kg per h for the first 15 min, 9 mg/kg per h for the next 15 min and, when necessary, 6 mg/kg per h until the end of surgery. IA ($n = 38$) was anaesthetised with isoflurane after a propofol bolus of 2 mg/kg. Isoflurane was given in rising concentrations up to 1 MAC before the skin incision. After that, the anaesthesia was maintained with isoflurane on the 1 MAC level. DA ($n = 48$) was anaesthetised with desflurane after the same induction dose of propofol as before. Desflurane inhalation commenced at doses of 7.25% for patients aged over 30 and 6% for those less than 30 years old. The goal was to reach 1 MAC before the skin incision and to continue at that level during the operation. All the general anaesthesia patients were relaxed with a single bolus of mivacurine 0.3 mg/kg and intubated. The patients were normoventilated (EtCO₂ 4.5–5.5%) with 30% oxygen in air. The fresh gas flow was constantly 2 l/min for all general anaesthesia groups. Alfentanil (0.5 mg) was administered for pain when needed. Before the operation began, 100 mg of ketoprofen diluted in 20 ml 0.9% NaCl was given to all groups. Postoperatively, all patients received 100 mg of ketoprofen i.v. or p.o. three times every 24 h and 0.05 mg of fentanyl i.v., when necessary for postoperative pain relief.

Home readiness was assessed according to Kari Korntila's criteria for safe discharge after ambulatory surgery [10].

2.2. Cost accounting

The direct costs [11] of the materials needed for certain types of anaesthesia and the work in the operation theatre (OT) and the recovery unit (RU) were calculated. The fixed costs [11] that remain unchanged regardless of the number of operations were ignored. The time spent in OT and in postoperative care in the RU before discharge were measured. The surgical team in the OT consisted of two doctors and three nurses. During the postoperative period, one nurse was able to take care of three patients. The average OT and RU salary costs per minute were calculated by dividing the total salaries with the OT and RU working hours.

The price for liquid drugs was calculated per quantity of each drug used in ml. The cost of inhalation anaesthetics is more elusive. These costs were calculated from the formula [12]:

Cost in Finnish marks (FIM) = $PFTMC/2412d$

where, P is the vapouriser concentration (Fi%); F is fresh gas flow (l/min); T is the duration of anaesthesia (min); M is molecular weight (g); C is the cost of anaesthetic (FIM/ml); d is density (g/l).

This calculation assumes that the gases are delivered from the machine at an atmospheric density corresponding to 21°C, which explains the factor 2412 in the formula.

M , C and d are agent specific and are defined as:

	Isoflurane	Desflurane
M (g)	184	168
C (FIM/ml)	3.3	1.4
d (g/l)	1.496	1.450

Statistics

The tests of normality (Kolmogorov–Smirnov and Shapiro–Wilk) were used. The Kruskal–Wallis test was used for the non-parametric variables and ANOVA for the parametric variables (post hoc Scheffe test). $P < 0.05$ was considered to be significant.

3. Results

There were no significant differences in demographic data, operation time and total stay in OT. The time before discharge in the spinal group was over 3-fold compared to all the general anaesthesia groups ($P < 0.001$) (Table 1.). All patients were alert 60 min after the operation and the mean incidence of postoperative nausea was 3.4% with no statistical difference between the groups.

The total anaesthesia cost (TC, including OT, RU and fixed costs) for 1-h elective day surgery in the Oulu University Hospital is 691 FIM (1 FIM = 0.19 USD). The average OT anaesthetic material costs are 83.4 FIM (12.1% of TC) for SA, 164.2 FIM (23.8% of TC) for PA, 110.8 FIM (16.0% of TC) for IA and 123.3 FIM (17.8% of TC) for DA. The postoperative personal costs are 0.44 FIM/min per patient spent in the RU and the material costs 15.3 FIM/patient. The average RU costs were 88.7 FIM for SA (12.8% of TC), 39.7 FIM for PA (5.8% of TC), 41.4 FIM for IA (6.0% of TC) and 34.8 FIM for DA (5.0% of TC).

The anaesthetic material costs, without fixed costs for SA, PA, IA and DA, are shown in Table 2.

4. Discussion

The results on the total anaesthesia costs for these four different types of anaesthesia showed the two inhalation anaesthetics to be significantly cheaper than

Table 1
Demographic characteristics, duration of operation and total time spent in operation theatre (OT) and time to reach home readiness. The values are presented as medians and range (min–max)

	Spinal	Propofol	Isoflurane	Desflurane
Number of patients (n)	55	32	38	48
Age (years)	41 (16–63)	37 (17–65)	41.5 (17–61)	37.5 (16–64)
Men/women (%)	46/54	38/62	62/38	63/37
Height (cm)	170 (153–187)	170 (153–183)	173 (153–184)	175.5 (155–186)
Weight (kg)	75 (46–95)	72 (51–95)	75.5 (52–95)	75 (54–95)
Operation time (min)	20 (7–75)	18 (6–77)	20 (7–67)	16 (7–70)
Total stay in OT (min)	64 (41–114)	64.5 (43–145)	65 (44–121)	60 (40–112)
Home readiness (min in RU)	168** (90–260)	55 (22–107)	56 (23–165)	46 (19–154)

** $P < 0.001$.

propofol infusion or spinal anaesthesia. Although spinal anaesthesia has the lowest material costs, the long recovery process in the RU makes it less economical than inhalation anaesthetics with isoflurane or desflurane. One reason for the long recovery process in the spinal group might be the high dose of lidocaine given to the patients. A 50–60 mg dose of lidocaine, as oppose to 75–100 mg, may result in more targeted anaesthetics.

Salaries make up the largest part of the costs and short-acting anaesthetic agents, which help to reduce patient recovery times, may produce a positive net effect by lowering the costs in terms of increased patient throughput.

The fresh gas flow is an important factor in determining the costs of inhalation anaesthetics. A reduction of the fresh gas flow rates from 8 to 4 l/min was associated with a 55% decrease in the cost of isoflurane, without any impact on the quality of care [13]. The practice of reducing flow rates to 1–3 l/min after an initial high flow rate for 5–10 min, when uptake is rapid, is a simple cost-saving measure [14]. If the 2 l/min flow rate, which was used in this study, had been lowered to 1 l/min, the cost difference compared to propofol would have been greater.

It has been suggested that the use of propofol for outpatient anaesthesia is cost-effective, as it results in more rapid recovery [15]. In this study, recovery from

propofol anaesthesia took equally as long as recovery from isoflurane or desflurane anaesthesia. The material costs for propofol anaesthesia are twice as high as the material costs for spinal anaesthesia when the prices of wasted drugs are included. Propofol anaesthesia was most expensive, although the recovery profile was smooth. The overall incidence of postoperative nausea was low, and it had no effect on postoperative costs.

We conclude that the total costs for isoflurane and desflurane anaesthetics were significantly lower than the costs of spinal or propofol anaesthesia. Inhalation anaesthesia, with either isoflurane or desflurane, is more cost-effective than spinal or propofol anaesthesia in elective ambulatory knee arthroscopy.

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Table 2
Anaesthetic material costs without fixed costs for ambulatory knee arthroscopy

Anaesthesia	Cost
Spinal	172.1 FIM
Propofol	203.9 FIM
Isoflurane	152.2 FIM*
Desflurane	158.1 FIM*

* $P < 0.05$.

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Improving the classification of hemorrhoids: results of an Italian multicentric study on 1494 patients

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Abstract

The general classification of hemorrhoids presents some wide gaps, because of progress in coloproctology. The authors present their proposal for a new classification and refer to a national multicentric study made in collaboration with 19 centers, on a total of 1494 patients. A clinical comparative study between the two forms of classification is described. On the basis of their findings, the new classification presents a better diagnostic resolution in comparison with the old. The authors recommend the clinical applicability of the new classification. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Ambulatory surgery; Hemorrhoids; One day surgery; Proctology

1. Introduction

The introduction of Ambulatory Surgery (AS) and One Day Surgery (ODS) in proctology makes indispensable a critical review of the surgical options for hemorrhoids [1]. The routine use of local anesthesia allows ambulatory hemorrhoidectomy to be performed [2]. The established classification of hemorrhoids does not correctly define the fourth stage and the acute events of the disease and for these reasons it does not fit the evolution of proctology. The authors [3] propose a new classification for hemorrhoids and refer to a comparative study of the two classifications with the collaboration of 19 centers of coloproctology, on a total of 1494 patients. A mean of 78.6 reports (min 13, max 150) were received from these centers. Each report defined an individual patient's hemorrhoids using both the old classification and the new. All the data have been submitted to a statistical analysis in order to check the utility of the new classification and its eventual clinical applicability.

2. Method

The new classification is essentially based on the description of the precise number of nodules in the anal canal. Type 1 describes the presence of internal piles, while Types 2 and 3 correspond to a single or double prolapsed pile. Type 4 indicates more than two prolapsed piles or total circumferential hemorrhoidal prolapse. Acute events are also categorized as they represent distinct ways of clinical presentation. Type 5 is edema of a single pile, and Types 6 and 7 correspond to external hemorrhoidal thrombosis or massive thrombosis (Fig. 1). The authors have undertaken a clinical comparative study of the two methods of classification of hemorrhoids on a consecutive series of 1494 patients, 672 female (44.9%) and 822 male (55.1%). The average age was 48 (range 18–93) years. All the patients underwent proctological examination and were classified using both the old and the new classification systems. Proctological examination consisted of a general evaluation of the external anal canal and rectal examination. All the patients with other proctological pathologies or who had previously undergone proctological surgery were excluded from the study. At the end of the medical examination, each specialist completed a question-

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naire defining the patient's hemorrhoids both using the old and the new classification systems. According to the purpose of the study each classification provided the possibility of the outcome 'not classifiable'. Statistical analysis studied the similarity between the two systems throughout a cross-referenced double-input table. The McNemar test for dependent samples was used to test the above-described hypothesis.

3. Results

A descriptive analysis compared the distribution in the old classification (degree 1, 2, 3, and 4) with the new. The first degree of the old corresponded almost completely with Type 1 of the new classification in 88% of cases. The remaining 12% classified this degree in the range of acute events (6%) and in Types 2 and 3 of the new (6%) (Fig. 2). The second degree of the old was classified in 69% of cases Type 2 and 3, in 22% as Type 1, in 4% as acute events and in 5% as type 4 of the new classification. The third degree of the old classification corresponded in 77% of cases to Type 2 and 3, in 13% to Type 4, in 2% to Type 1 and in the remaining 8% to the acute events of the new classification (Figs. 3 and 4). The most important result was the distribution of the classification of the fourth degree: although 55% of the cases corresponded to Type 4 of the new (complete prolapsed hemorrhoids), in 28% of the cases it was

OLD CLASSIFICATION OF HEMORRHOIDS

- INTERNAL HEMORRHOIDS:

FIRST DEGREE: are cushions that do not descend below the dentate line on straining

SECOND DEGREE: are cushions that protrude below the dentate line on straining and can be seen at the exterior, only to disappear again immediately straining stops

THIRD DEGREE: are cushions that descend to the exterior on straining or defecation and remain outside until they are digitally replaced into the anal canal, where they remain until the next bowel movement or possibly the next act of straining

FOURTH DEGREE: internal cushions that are permanently outside the anal verge

- EXTERNAL HEMORRHOIDS

NEW CLASSIFICATION OF HEMORRHOIDS

TYPE:

- 1- INTERNAL PILE/S
- 2- SINGLE EXTERNAL PILE
- 3- DOUBLE EXTERNAL PILE
- 4- TRIPLE EXTERNAL PILE OR COMPLETE HEMORRHOIDAL PROLAPSE

ACUTE EVENTS

- 5- EDEMA SINGLE PILE
- 6- EXTERNAL HEMORRHOIDAL THROMBOSIS
- 7- MASSIVE HEMORRHOIDAL THROMBOSIS

Fig. 1. Proposal of the new classification of hemorrhoids.

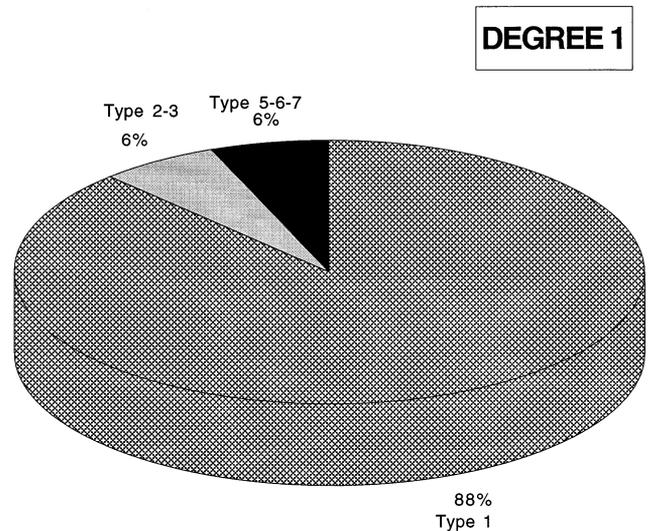


Fig. 2. Method of classification of the first degree in the new classification.

placed in Types 2 and 3 of the new and in the remaining 16% in the acute events, elements both introduced in our new classification (Fig. 5). Types 2 and 3 of the new classification (single and double nodule) therefore represented the way of classification for the second degree (69%), third degree (77%), and fourth degree (28%) of the previous classification. Type 4 of the new classification (complete prolapsed hemorrhoid) mainly corresponded to the fourth degree of the old classification (56%). The acute events introduced with the new classification (Type 5, 6, 7) draw from all groups of the old classification: first degree: 6%; second degree: 4%; third degree: 8%; fourth degree: 17%. This demonstrates that they represent an autonomous clinical entity. Nineteen patients were 'not classified' with the new classification (1.28%), while 49 (3.29%) with the old. The McNemar χ^2 test was applied and showed statistical significance. The new classification system shows a classification capacity three times superior to the old one.

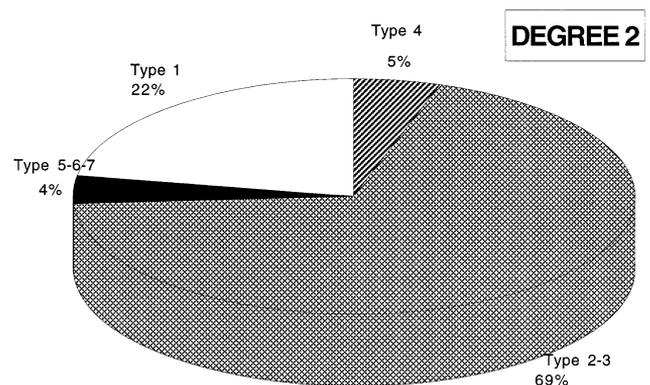


Fig. 3. Method of classification of the second degree in the new classification.

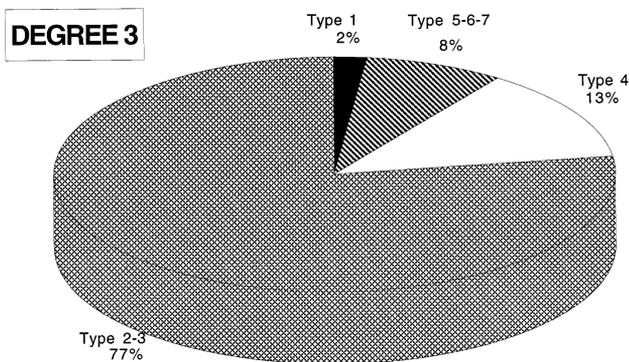


Fig. 4. Method of classification of the third degree in the new classification.

4. Discussion

The old classification of hemorrhoids does not fit the evolution of proctology in particular the introduction of local anesthesia and the development of AS and ODS. The incorrect definition of the fourth stage, the absence of the categorization of acute events and the inability to categorize suitable cases for AS and ODS, seem sufficient to propose a new classification based on the definition of the precise number of the nodes present in the anal canal with or without straining and on the definition of the acute stages of the illness. Marti [4] underlines that 60% of proctologic operations can be performed on an outpatient basis. He proposes a division of different pathologies in proctology according to the type of anesthesia. As far as hemorrhoids are concerned, he divides surgery for a single pile and for complete prolapsed hemorrhoids, because the two clinical situations need a different therapeutic approach. The results of our multicentric study seem to confirm the inefficiency of the old classification. The validity of the new classification has been studied introducing the parameter of inability to classify the patient with the two classifications. The statistical analysis conducted on the variable called 'unclassifiable' demonstrates a diagnostic usefulness three times greater with the new classification. The unclassifiable parameter is used 49 times with the old (3.29%) and only 19 (1.28%) with the new. For this reason the new classification has a major diagnostic impact in comparison with the old. The

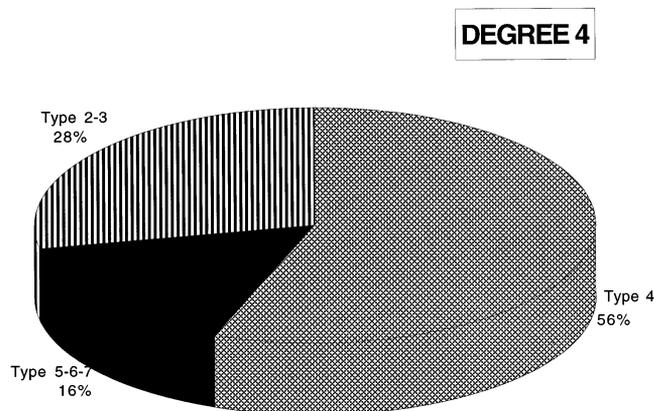


Fig. 5. Method of classification of the fourth degree in the new classification.

category of patients defined as unclassifiable in the old classification could be classified in 33% of cases as Types 2 and 3 and in 48% as Types 5, 6, 7 (acute events) in the new classification. The new classification seems to better define hemorrhoids, and in our opinion, it could form the basis of a much needed modern classification.

Acknowledgements

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A report on the reformation of the Kazakhstan health services with the development of ambulatory surgery

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Keywords: Reformation; Kazakhstan health services; Ambulatory surgery

Kazakhstan is a Central Asian republic which became independent in 1991. It is the ninth biggest country in the world with a territory of 2.7 million km² and a population of 15.7 million (1997). The country is ethnically diverse with a higher proportion of Russians than other Central Asian Republics Kazaks (55%), Russians (25%), Ukrainians (4%), Germans (3%), Uzbeks (2%) and others (11%).

Kazakhstan has faced a difficult transition period. There has been a deterioration in the population's health indicators. The birth rate has dropped from 24.9 births per 1000 in 1985 to 14.7 in 1997. Average life expectancy fell during the 1990s to 58.9 years for males and to 70.6 years for females (1996). The infant mortality rate is 27.9 per 1000 live births and the maternal mortality is 57.4 deaths per 100 000 live births (1995).

The current situation in Kazakhstan's healthcare services is the result of the macroeconomic problems of a developing, newly independent country. Until 1996 the healthcare system in Kazakhstan was based on the post-Soviet model of Semashko; insignificant changes took place and the return process was curtailed by legislative and social-economic factors.

For years healthcare development was based on quantitative indicators (number of hospital beds, visits, medical staff) which did not create the conditions necessary for the introduction of new medical technology and an improvement in the quality of medical care. There was no economic motivation for medical staff to provide a better service.

From 1992 to 1997 reforms based on the introduction of pilot projects in experimental regions were

gradually introduced. The Ministry of Health developed the strategy for this process which consisted of the legislative of a basis for reform and the introduction of changes in the organization, management, economics and finance of healthcare.

The introduction of a change in economic approach and a shift in emphasis from hospital inpatient care ambulatory care, stimulated changes in hospital structure and a reduction in the number of hospital beds. Departments of nursing care, ambulatory surgery and day care were introduced.

A few private clinics were opened, but they have little effect on the state healthcare system.

Between 1990 and 1998 the number of hospitals was reduced from 1800 to 960 and the number of hospital beds from 136 to 85 beds per 10 000 population. The number of rural hospitals decreased from 1045 to 365 and the number of day care hospitals increased from 280 to 400.

As a result of these changes the average bed occupancy increased while the average hospital length of stay was decreased. Further changes that need to be looked at to promote an improvement in the quality of health services and an optimisation of hospital structure are the introduction of competition between hospitals and reforms in training programmes for physicians and nurses especially in rural areas. The role of nurses also needs to be reviewed and possibly increased.

The incidence of diseases requiring surgical intervention is high in Kazakhstan — 163.9 per 1000 population. The majority of surgical patients are treated in hospitals and are admitted as emergency cases only 30–50% of patients undergo elective surgery.

Ambulatory surgery is not well developed and the medical personnel and in ambulatory surgery units is

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interior to main inpatient hospitals. As a result hospital beds are overused and medical care costs are higher than they need to be. Research on hospital care including suitable controls was conducted in Almaty Central Municipal Hospital. The programme looked at ambulatory surgery and had the following aims:

1. To develop and introduce the new principles and technology necessary for ambulatory surgery.
2. To introduce the principles of surgical treatment at home and day care hospitals.
3. To develop the technology of anaesthetic and surgical monitoring and continuous surgical care.
4. To undertake an integrated evaluation of the quality and cost effectiveness of surgical treatment within the programme.

Our results showed that the cost of emergency surgery provided for patients enrolled in our programme of monitoring and continuous surgical care was 1.3 times higher than planned surgery (\$US 144 vs. 111). The most important part of our programme was the increase in capacity and volume of ambulatory surgery.

The introduction of new monitoring technology, continuous surgical care and day-care hospitals (including surgical home care), resulted in reduction in the number

of patients receiving emergency surgery and an increase in the number of patients for undergoing elective surgery. The development of day-care hospitals and home surgical care allowed a reduction in the number of hospital beds and a more cost effective use of the remaining beds.

For instance, the average length of treatment (including out-patient treatment) was reduced by 17.5% due to the more intensive use of day-care hospital beds and from 13.9 to 5.9 days due to the introduction of surgical home care.

To evaluate the quality of ambulatory surgery, an evaluation programme was developed to monitor the quantity and accuracy diagnostic procedures and to compare the continuity of care provided by ambulatory and regular hospital treatment.

Our results showed that 88.1% of patients in our research group received complete care compared to 32.7% in our control group.

In conclusion, we would emphasise that an extension of a programme of ambulatory surgery, suitably monitored, together with the introduction of day-care hospitals has benefits in social economic and medical terms compared to traditional inpatient hospitalisation.

Adverse outcomes in ambulatory anesthesia — what can we improve?

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Abstract

Currently, an estimated 65% of surgical procedures in North America are completed in ambulatory settings. In this review, we summarize the outcome measures that can be used in the assessment of the safety of ambulatory surgery and anesthesia. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Ambulatory surgery; Anesthesia; Safety

1. Mortality and morbidity

The traditional measures of quality and safety of surgery and anesthesia are perioperative mortality and morbidity rates (Table 1). Deaths related to ambulatory surgery or anesthesia are extremely rare events, and very low rates of major morbidity are reported repeatedly throughout the relevant literature. Warner et al. following 38 598 ambulatory surgical patients for 30 days after their surgery documented only four deaths and 31 cases of major morbidity [1]. In four other studies on ambulatory surgical patients, no perioperative deaths were identified [2–5]. Morbidity rates in the

latter studies were under 10%, although these studies also included minor adverse events, such as blood pressure irregularities, postoperative pain, and postoperative nausea and vomiting (PONV) [3–6].

The inclusion of less serious adverse outcomes results in higher morbidity rates. However, it reflects the burden of ambulatory surgery on health care providers and on patients more appropriately, since even minor events may necessitate extra patient care and may prevent the patients returning to their preoperative functional level. Incidence rates of perioperative adverse events observed at our institution are listed in Tables 2 and 3.

1.1. Cardiovascular and respiratory adverse events

Cardiovascular adverse events are the most common ones occurring during ambulatory surgery [3,5,6]. Of these cardiovascular events, blood pressure abnormalities occur most frequently, followed by different types of rhythm disorders. Cardiovascular events also occur in the immediate postoperative period, with lower frequencies [3,6].

The occurrence of perioperative cardiovascular events may result in prolonged postoperative stay [7]. Cardiovascular events warranting unanticipated hospital admissions are relatively infrequent and life-threatening cardiovascular events, such as myocardial infarction, are extremely rare among ambulatory surgical patients [1,8]. Cardiovascular events occur with

Table 1
Outcome measures in ambulatory anesthesia

Mortality	Immediate Long-term
Morbidity	Intraoperative Immediate postoperative Long-term postoperative
Prolonged postoperative stay	
Unanticipated hospital admission	
Return hospital visit and hospital readmission	
Patient satisfaction	
Postoperative functional level	

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Table 2
Incidence of intraoperative adverse events by patients' age (patients <65 years vs. patients ≥65 years)^a

Adverse events	Rate of events (%)		Rate of events (%) Total (n = 17 639)
	Patients <65 years (n = 12 852)	Patients 65 ≥ years (n = 4786)	
Intraoperative	2.6	7.5	4.0
<i>Cardiovascular</i>	1.4	7.0	2.9
Hypertension	0.4	4.9	1.6
Hypotension	0.4	0.5	0.4
Bradycardia	0.5	0.4	0.4
Dysrhythmia	0.1	1.0	0.3
Tachycardia	0.1	0.2	0.1
<i>Respiratory</i>	0.6	0.2	0.5
Laryngospasm/stridor	0.2	<0.1	0.2
Desaturation	0.2	0.1	0.1
Bronchospasm	0.2	0	0.1
Apnea	<0.1	0.1	<0.1
<i>Intubation related events</i>	0.3	0.2	0.3
Difficult intubation	0.2	0.1	0.2
Unplanned intubation	0.1	<0.1	0.1

^a Data from the Ambulatory Surgical Unit of the Toronto Western Hospital.

Table 3
Incidence of postoperative adverse events by patients' age (patients <65 years vs. patients ≥65 years)^a

Adverse events	Rate of events (%)		Rate of events (%) Total (n = 17 638)
	Patients <65 years (n = 12 852)	Patients 65 ≥ years (n = 4786)	
<i>Postanesthesia Care Unit</i>	12.1	3.1	9.6
Excessive pain	6.3	0.6	4.7
Nausea, vomiting	2.7	0.7	2.2
Shivering/hypothermia	1.1	0.2	0.9
Drowsiness/sleepiness	0.6	0.1	0.4
Cardiovascular	0.4	1.1	0.6
Respiratory	0.4	0.3	0.4
Excessive bleeding	0.1	0.1	0.1
<i>Ambulatory Surgical Unit</i>	9.5	3.4	7.9
Nausea, vomiting	4.8	1.3	3.9
Excessive pain	2.2	1.0	1.9
Dizziness	1.7	0.4	1.3
Drowsiness	0.4	<0.1	0.3
Cardiovascular	0.1	0.3	0.1
Excessive bleeding	0.1	0.1	0.1

^a Data from the Ambulatory Surgical Unit of the Toronto Western Hospital.

higher frequency among patients with preexisting cardiovascular diseases. Increasing age is also associated with a higher incidence of cardiovascular events (Fig. 1) [3,6,9].

Respiratory problems are the second most frequent intraoperative events [3,5]. These are mostly laryngospasm and bronchospasm. Episodes of apnea, aspiration, pneumothorax, and pulmonary edema occurring during ambulatory surgery are also reported [2,3,5,10]. Respiratory complications may also result in unanticipated admission [8,10]. Smokers, obese patients and

patients with asthma are at higher risk of developing perioperative respiratory events [3,9].

1.2. Postoperative pain, PONV and minor sequelae

Postoperative pain is one of the most frequent postoperative adverse events after ambulatory surgery. Type and invasiveness of surgery have the most significant effect on the incidence of severe postoperative pain (Fig. 2) [11–13]. Duration of the procedures is also associated with the incidence of postoperative pain.

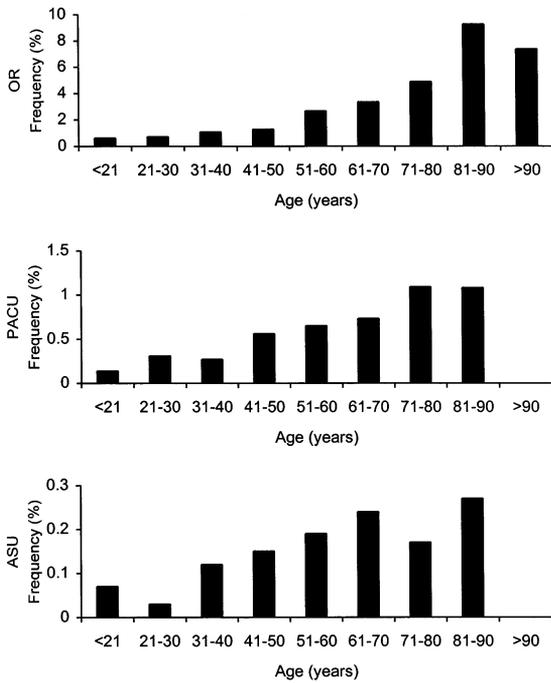


Fig. 1. Frequency of intraoperative and postoperative cardiovascular adverse events by age group. (Data from the Ambulatory Surgical Unit of the Toronto Western Hospital).

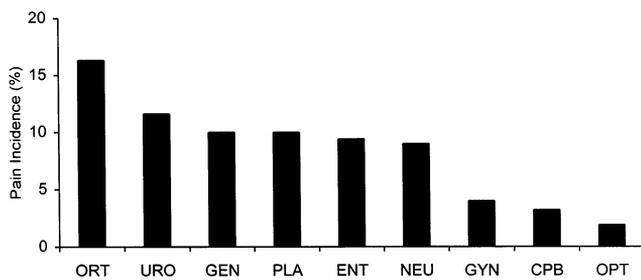


Fig. 2. Incidence of postoperative severe pain by type of surgery. ORT, Orthopedic; URO, urology; GKN, general surgery; PLA, plastic surgery; ENT, ear, nose, throat and dental surgery; NEU, neurosurgery; GYN, gynecology; CPB, chronic pain block; OPT, ophthalmology. (Data from the Ambulatory Surgical Unit of the Toronto Western Hospital).

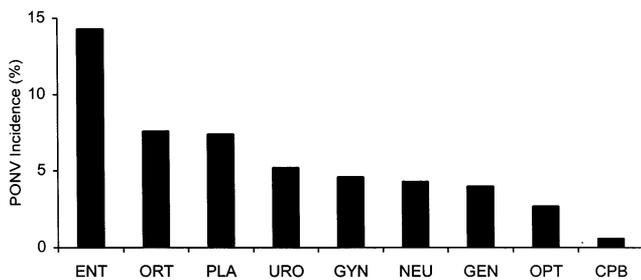


Fig. 3. Incidence of postoperative nausea and vomiting (PONV) by type of surgery. ENT, Ear, nose, throat and dental surgery; ORT, orthopedic; PLA, plastic surgery; URO, urology; GYN, gynecology; NEU, neurosurgery; GKN, general surgery; OPT, ophthalmology; CPB, chronic pain block. (Data from the Ambulatory Surgical Unit of the Toronto Western Hospital).

Patients undergoing longer procedures experience a higher incidence of pain [11].

Severe and moderate postoperative pain decreases patients' postoperative functional level and it is also associated with longer postoperative stay, higher rate of unanticipated admission and readmission [7,8,14–16]. Pain and medications used for pain management, primarily opioids, precipitate PONV, which may also result in prolonged stay and hospital admissions, underlining the importance of appropriate pain management in ambulatory surgery.

PONV is an important and frequent complication related to ambulatory anesthesia. Although its incidence seems to decline, probably as a result of the widespread use of newer anesthetic drugs and surgical techniques, it is still one of the strongest predictors for prolonged postoperative stay and unanticipated hospital admissions [7,17].

The frequency of PONV shows wide variation by type and length of anesthesia, the anesthetic drugs used, type of surgery and different patient characteristics. General anesthesia is associated with the highest incidence, and usually there is an even higher frequency among patients receiving inhalation agents [18]. The frequency of PONV also varies widely by type of surgery (Fig. 3). Patients undergoing more painful procedures face a significantly higher risk [19]. Female sex, younger age, presence of obesity, history of motion sickness and history of previous PONV are also risk factors for a higher incidence of PONV, while smoking seems to decrease the incidence of PONV [3,18].

Sore throat, shivering, dizziness, drowsiness and headache are frequent minor complications, which could also result in prolonged postoperative stay, and strongly influence patient satisfaction and functional level (Fig. 4) [13,14].

1.3. Elderly patients and patients with preexisting medical conditions

Elderly patients face a higher risk of developing perioperative cardiovascular events than younger patients, but they are less likely to suffer from all other perioperative events [6]. The increase in the risk of cardiovascular events among the elderly does not contraindicate ambulatory surgery in these patients, but it calls for a more thorough perioperative cardiovascular management.

Certain preexisting medical conditions also increase the risk of perioperative adverse events (Table 4). These associations, while they do not preclude patients from undergoing ambulatory surgery, warn the anesthesiologists that the anesthetic care of each patient needs to be individualized based on the patient's characteristics.

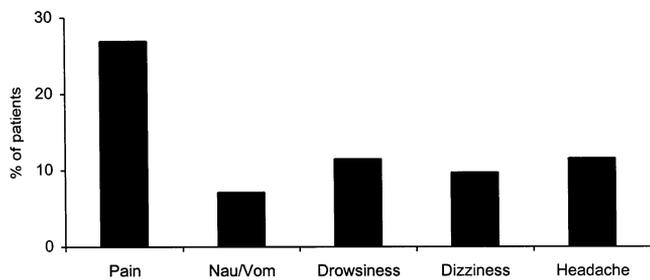


Fig. 4. Postoperative symptoms 24 h after ambulatory surgery by telephone interview ($n = 778$). Nau/Vom, nausea/vomiting.

Table 4
Association between the presence of preexisting medical conditions and adverse outcomes^a

Medical condition	Associated adverse outcome
Congestive heart failure	12% Prolongation of postoperative stay
Hypertension	Two-fold increase in the risk of intraoperative cardiovascular events
Asthma	Five-fold increase in the risk of postoperative respiratory events
Smoking	Four-fold increase in the risk of postoperative respiratory events
Obesity	Four-fold increase in risk of intraoperative and postoperative respiratory events
GE reflux	Eight-fold increase in the risk of intubation related adverse events

^a Data from the Ambulatory Surgical Unit of the Toronto Western Hospital.

Table 5
Association between the occurrence of perioperative adverse events and the duration of postoperative stay^a

Adverse event	Associated percentage increase in duration of postoperative stay (%)
<i>Intraoperative event</i>	
Cardiovascular	8
<i>Postoperative event</i>	
Cardiovascular	42
Nausea/vomiting	30
Dizziness	30
Excessive pain	24
Drowsiness	19
Shivering	11

^a Data from the Ambulatory Surgical Unit of the Toronto Western Hospital.

2. Prolonged postoperative stay

Duration of postoperative stay is also a commonly used outcome measure of ambulatory surgery and anes-

thesia [20]. Duration of postoperative stay correlates well with the occurrence of minor or moderately severe complications (Table 5). Actual discharge time may be different from the time when the patient is ready for discharge, mostly as a result of late or unavailable escort, or inadequate discharge practices.

The length of postoperative stay and the occurrence of prolonged postoperative stay are most influenced by the type of anesthesia and surgery [7,21]. General anesthesia, which is associated with a high incidence of PONV, and certain painful procedures are associated with lengthy stays [11,12,17,19]. The occurrence of excessive pain and PONV increases the likelihood of prolonged stay by about 3 to 4-fold [7,11]. Cardiovascular events, drowsiness and dizziness may also significantly lengthen the duration of stay [7].

Sex and age are also associated with the incidence of adverse events predicting prolonged stay. Women are more prone to suffer from PONV than are men [18]. Younger patients are more likely to suffer from excessive pain and PONV, while the elderly are more likely to experience cardiovascular events [6].

3. Unanticipated hospital admissions

Unanticipated hospital admission rates usually mirror the frequency of severe complications. The reported rates of unanticipated admissions range between 0.3 and 1.4% [4,8,10,12,15].

The most frequent reasons for unanticipated hospital admissions are surgical complications (excessive pain, bleeding). Anesthesia related (PONV, somnolence, dizziness) and medical (mostly cardiovascular) complications may also lead to unanticipated admissions. A significant proportion of the unanticipated admissions is due to social reasons.

Patients undergoing painful surgery are about 4 to 30-fold more likely to be admitted following surgery [8]. Patients receiving general anesthesia are 2 to 5-fold more likely to be admitted than patients without general anesthesia, and with increasing duration of anesthesia the probability of admission also increases [8,10].

4. Return hospital visits and hospital readmissions

Complications may develop even after a safe discharge resulting in return hospital visits or hospital readmissions. Published results show that within the first 24–72 h, 4–8% of ambulatory surgical patients are seen by a doctor, while this proportion is up to 12% within the first postoperative month [4,22]. Hospital readmission rates are significantly lower, ranging between 0 and 3% within one month following ambulatory surgery [12,16,23]. Twersky et al. found that,

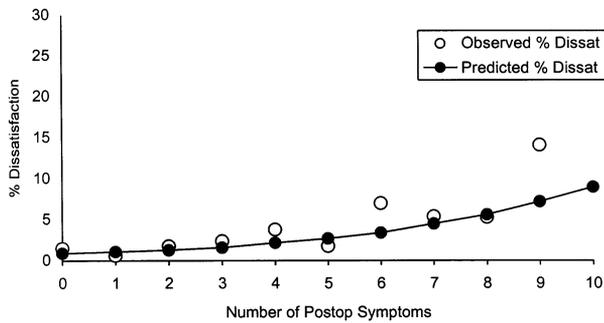


Fig. 5. Predicted (solid circles) and observed (open circles) dissatisfaction with anesthesia based on number of postoperative symptoms.

although 3% of their 6243 patients were admitted to hospital within one month of discharge, only 1.3% of the patients were admitted as a result of complications [16]. The most common reasons for complication related readmissions were bleeding, fever and infection, pain, wound disruption, and urinary retention. No anesthesia related readmissions were identified.

5. Patient satisfaction and postoperative functional level

Patient satisfaction with ambulatory surgery and anesthesia is generally high (97–99%) [12,24]. The main reasons for dissatisfaction with anesthesia are the occurrence of perioperative adverse events. Dissatisfaction is also strongly associated with the number of postoperative symptoms the patients develop (Fig. 5) [24].

Ambulatory surgical patients' postoperative functional level is shown to be significantly decreased [13,14,25]. Swan et al. showed that ambulatory surgical patients experienced decreased functional status during the first seven postoperative days and only 22% of the patients returned to work by the seventh day after operation [25].

6. Conclusion

Ambulatory surgery, as it is currently practiced, has an excellent safety record. Major morbidity is infrequent, and deaths are extremely rare events during or following ambulatory surgery. Less serious, non life-threatening perioperative events, such as intraoperative cardiovascular events, and most frequently postoperative pain and PONV, are occurring with higher incidence. These minor events may result in prolonged postoperative stay, unanticipated hospital admission or hospital readmission, and they also affect patient satisfaction and postoperative functional level. The occurrence of these minor adverse events is now the major area of quality assessment and an area where improve-

ment should be targeted. The goal of lowering the incidence of these minor adverse events related to ambulatory surgery could be achieved by development of less invasive surgical techniques, use of newer shorter acting anesthetic drugs with fewer side effects and improved postoperative pain management.

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Does age, gender or educational background effect patient satisfaction with short stay surgery?

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Abstract

Patient satisfaction is an area of special interest to health care workers. The aim was to investigate if a patient's age, gender or educational background effected their satisfaction with short stay surgery. The results showed that the 275 patients were quite satisfied with the care. The findings did not indicate a correlation between age or gender and patient satisfaction. There is however some agreement implying that patients with a higher educational level have a different view of the care given than patients with lower educational background. A standardization of design and questionnaire is necessary to be able to correlate patient satisfaction related patient characteristics. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Satisfaction; Short-stay surgery; Age; Gender; Educational background

1. Introduction

Patient satisfaction has been an area of special interest to health care workers at different levels for many years [1–5]. Globally, researchers have studied patient satisfaction both in general as well as specifically in surgical care [6–18]. During the last 15 years several review articles have been published, in which the authors have attempted to achieve consensus concerning a definition for patient satisfaction, thus far without success [1–5,8,19–23].

For the measurement of patient satisfaction several different methods have been suggested [3,5,19,23,24]. In Sweden, patient satisfaction studies have been based upon different questionnaires and interviews [9–13,18]. Regardless of which method is used, the researcher must be clear about what is to be investigated, and must be aware of the chosen method's particular weakness [4,23].

Patient satisfaction is a term that can be interpreted differently by patients. Its meaning can also differ for one patient at different times [4,17]. Various studies have presented diverging results concerning possible relationships between patient characteristics and patient

satisfaction with care and treatment [3,7,8,25]. Younger patients have been reported to be less satisfied with given care compared to older patients [7,18].

Research has shown certain important areas considered to be significant for patient satisfaction [2,3,11,14,16]. In a review study by Hall and Dornan humanness, competence, outcome, facilities, continuity of care, access, information, cost, bureaucracy, and attention to psycho-social problems were suggested to be of importance for patient satisfaction [2]. A review by Cleary and McNeil found good communication skills, empathy and caring to be the strongest predictors of how a patient evaluated the care received [3]. Bostrom et al. found a correlation between patient satisfaction and nursing staff continuity, particularly in young and acute patients [14]. Björkman et al. report staff empathetic qualities i.e. being interested, understanding, listening, and respectful to be of importance for patient satisfaction [11].

With the increasing demands from politicians and management, health care workers have attempted to make health care more cost efficient without a reduction of quality [4,19]. Health care workers can no longer disregard the financial aspects of their organization [19]. Patient care can become more effective by employing new strategies [26]. One method to increase

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efficiency and decrease cost is to shorten the duration of hospitalization [27]. In order to reduce cost, our surgical department changed certain routines. Patients with multiple diseases and who were in need of minor surgery or diagnostic treatment were selected to be treated in a special short stay surgery unit (*idem*). Short stay surgery is here defined as minor surgery with a post-operative inpatient time between 12 h and 4 days.

After 4 years of successfully developing and confirming the organization and the philosophy of care, the staff requested an investigation into patient satisfaction. Questions were also raised as to the importance of age, gender and educational background in relation to patients' satisfaction with care. These patient characteristics were chosen because the nurses experience was that younger patients and patients with higher education did not want to spend as much time on the unit as older and less educated patients.

The aim of this study was to investigate if patients' age, gender or educational background effected their satisfaction with short-stay surgery. In particular patient characteristics were related to perceptions of doctor and nurse continuity, information requirements, interpersonal care, emotional support, pain treatment, and need for assistance after discharge.

2. Method and patients

The study was prospective and the nurses of the unit asked all patients, who could read and understand Swedish, if they wished to be included. In connection

with discharge the patients received a questionnaire together with a stamped addressed envelope with which to return their responses. All patients were informed that the questionnaire would be handled anonymously. The patients' identities were not available to the authors, as the questionnaires were sent to a secretary at the department who removed identifying data. A reminder was sent out to patients who did not respond.

The questionnaire was distributed to 340 patients. Two hundred and twenty four patients answered directly and after reminders a total of 275 responses were received. This corresponds to a response rate of 66% and 81% with the reminder. Of those who took part in the study, 141 patients were females (mean age 54, range 24–88 years) and 134 were males (mean age 57, range 26–87 years). The demographic profile of the respondents can be seen in Table 1. The most common procedures were angiography, cholecystectomy (mean postop stay 1,3) and hernia operation (mean postop stay 1,1) (Table 1). The patients were divided into two age groups, one younger (24–65 years) and one older (≥ 66 years) according to the Swedish age of retirement. The younger age group was almost twice as large as the older age group (Table 1). Eight female and four male patients did not divulge their age.

The material has been divided according to the three levels of education in Sweden. Compulsory education involving nine years of schooling resulting in a basic level of education, upper secondary school, a further 3–4 years of education and university. University studies imply anything from one year of further education up to a completed degree. Of the patients studied, 142

Table 1
Diagnoses, gender, and mean age of patients participating in the study

Operation/examination	Number of patients <i>n</i> = 275	Gender		Mean age (years)	
		Female <i>n</i> = 141	Male <i>n</i> = 134	Female <i>n</i> = 133	Male <i>n</i> = 130
Hernia repair	74	10	64	69 ^a	60 ^a
Cholesystectomi, open	47	37	10	55	58
Angiography	33	21	12	58 ^c	63
Cholesystecomi, laporoscopic	29	16	13	41 ^b	56
Other operation	21	12		49 ^a	48 ^a
Vertical banded gastroplasty (VGB)	14	9	5	43	42
Endoscopic retrograde cholangiopancreatography (ERCP)	12	9	3	48 ^a	35 ^a
Other examination/do not know	9	3	4	72	64
Varicose veins	7	7	0	66	0
Hemorrhoids	7	2	5	65	59
Abdominal wall plastic surgery	7	5	2	32	71
Ärrbräck	6	3	3	56	39 ^a
Navel hernia	5	1	4	70	58
Breast reduction	4	4	0	65	0

^a One patient, age not given.

^b Two patients, age not given.

^c Three patients, age not given.

Table 2
Percentage of patients answering 'yes' to questions related to doctors and nurses continuity in short-stay surgical care

Questions to the patients (in short)	Age, <i>N</i> = 263 ^a		Gender, <i>N</i> = 275		Educational background, <i>N</i> = 273 ^a		
	24–65 years	66+ years	Female	Male	Compulsory education	Upper secondary education	University education
	<i>n</i> = 168 (%)	<i>n</i> = 95 (%)	<i>n</i> = 141 (%)	<i>n</i> = 134 (%)	<i>n</i> = 142 (%)	<i>n</i> = 70 (%)	<i>n</i> = 61 (%)
Importance of meeting the same doctor on each hospital visit	79	69	80	69	76	79	69
Knew doctor's name	92	76	84	87	85	87	87
Importance of meeting the same nurse on each hospital visit	51	52	56	46	54	54	39
Knew nurse's name	85	78	81	84	87	86	72

^a In total 275 patients answered, but 12 gave no age and two patients gave no educational background.

Table 3
Percentage of patients answering 'yes' to questions related to patients need for information in short-stay surgical care

	Age, <i>N</i> = 263 ^a		Gender, <i>N</i> = 275		Educational background, <i>N</i> = 273 ^a		
	24–65 years <i>n</i> = 168	66+ years <i>n</i> = 95	Female <i>n</i> = 141	Male <i>n</i> = 134	Compulsory education <i>n</i> = 142	Upper secondary education <i>n</i> = 70	University education <i>n</i> = 61
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Questions to the patients in short							
Satisfied with information given prior to admittance	87	91	86	90	91	87	89
Staff explained functioning of unit	83	85	87	82	90	80	82
Patient knew whom to ask questions	85	79	79	87	81	81	90
Written information important	79	83	83	76	78	77	87

^a In total 275 patients answered, but 12 gave no age and two patients gave no educational background.

patients had completed compulsory education (mean age 62, range 27–88 years), as shown in Tables 2–4. Of the remainder, 70 patients had completed upper secondary school (mean age 52, range 24–83 years) and 61 patients had continued to university (mean age 48, range 26–86 years).

Of the 65 patients from whom responses were not received, three patients had died (two females and one male). One male claimed to have already responded, although the questionnaire could not be located, one female patient did not wish to respond and one female wished to wait until the next occasion of treatment. Of the remaining 59 patients, 32 were females and 27 males. The non-responders age and gender were thus similar to the responders. The 59 patients did not give reasons for non-participation.

According to the Ethical Committee of Lund University Hospital the research protocol was approved of by the chairman of the Department of Surgery at the University Hospital.

3. Description of the unit/setting

This study was conducted at the surgical department of a university hospital in southern Sweden, at a 12-beds unit [27]. Short stay surgery was introduced in 1990. The unit was staffed by doctors and registered nurses. Primary nursing as defined by Bond and Thomas was employed [21]. Thus, each patient was assigned one primary nurse responsible for his/her care on a 24-h basis [21]. Continuity of care was established by which the doctor and the primary nurse met the patient during outpatient visits and maintained contact during the hospital stay. The philosophy of the unit was that comprehensive information to patients about their condition and the perioperative period leads to a higher level of satisfaction with short-stay surgery and increases the chance of a successful outcome. The method

used was 'help to self help', in keeping with Hendersson thereby returning patients to normal daily life as quickly as possible [28].

Providing the patients with all necessary information was an important task for the nursing staff, particularly prior to the operation. The information given concerned the operative procedure, the patient's condition or disease and the normal post-operative course including pain, pain management, possible complications and sequel and how to act if they occur. Pamphlets for patients undergoing operations for hernias, varicose veins, hemorrhoids and morbid obesity were specially compiled as a complement to verbal information. The nurses' were also actively involved in planning the operation schedule. This enabled an efficient utilization of available resources. Our philosophy was that the more the patient knows about his/her condition and the perioperative period, the better the chances for a successful sojourn and a high level of patient satisfaction following short-stay surgery. The aim was efficient care with the highest degree of quality possible.

4. Data collection instrument

The data collection instrument used was based on a questionnaire used by Boman and Ramström-Lindgren in their study of a similar patient group [13]. Certain questions referring to age, gender and educational background were however added. The questionnaire was comprised of 43 questions. Nine questions concerning characteristics of the patient, type of surgery and length of hospital stay. Following these were 34 questions regarding the unit's care philosophy, eight questions regarding doctor and nurse continuity, eight questions regarding information requirements, three questions regarding interpersonal care, six questions regarding emotional support, six questions regarding pain relief requirements and three questions regarding the need for assistance following discharge. The re-

Table 4
 Percentage of patients answering 'yes' to questions related to interpersonal care and emotional support in short-stay surgical care

	Age, <i>N</i> = 263 ^a		Gender, <i>N</i> = 275		Educational background, <i>N</i> = 273 ^a		
	24–65 years	66+ years	Female	Male	Compulsory education	Upper secondary education	University education
	<i>n</i> = 168 (%)	<i>n</i> = 95 (%)	<i>n</i> = 141 (%)	<i>n</i> = 134 (%)	<i>n</i> = 142 (%)	<i>n</i> = 70 (%)	<i>n</i> = 61 (%)
Questions to the patients (in short)							
Patient was well received	84	91	89	84	89	86	84
Did staff have the time to provide sufficient attention and care	70	75	71	72	76	71	62
Did staff pay consideration to your anxiety?	90	82	85	89	88	84	90
Do you feel it was correct to discharge you on the day on which this occurred?	83	80	82	83	83	79	87
Did you know whom to contact at the hospital?	70	67	67	72	70	74	66
Patient called someone	21	8	18	15	11	20	23

^a In total 275 patients answered, but 12 gave no age and two patients gave no educational background.

sponse alternatives were 'yes/no answers' or as three to seven choices corresponding to different degrees of agreement/disagreement with the care philosophy. Three experts in the field analyzed the questionnaire for content validity before its use. Reliability testing was not performed.

The questionnaire responses were analyzed with regard to age, gender and educational background to see if any correspondences could be identified. The statistical method employed to study correspondences was the Cramér Coefficient (C) [29]. Statistical significance levels of $P \leq 0.05$ were accepted.

5. Results

The patients were generally positive regarding the care they had received. The results showed no statistically significant differences between females and males in this respect. Positive responses from patients are presented in connection with the areas of special interest in Tables 2–4.

5.1. Doctor and nurse continuity

Patients of all categories felt that it was important to meet the same doctor on each hospital visit (see Table 2). Only eight of the investigated patients had had this opportunity. Most patients knew the name of the doctor who had the main responsibility for their treatment. There was a weak correlation ($C = 0.12$, $P = 0.05$) between gender and the degree of importance attached to meeting the same doctor on each visit. There was also a weak correlation ($C = 0.22$, $P = 0.01$) between age and familiarity with the name of the doctor. Half of the patients felt that it was important to meet the same nurse on each hospital visit. Only 25 patients met the doctors in charge of their treatment at admission, during their hospital stay and at discharge. Ninety-six patients met their primary nurse during all three occasions. Patients familiarity with the nurses names was generally less than their familiarity with the doctors names and was lowest for those patients with a university education. With regard to knowing the nurses name, there was also a weak correlation ($C = 0.16$, $P = 0.05$) with education.

5.2. Patients need for information

Overall, the patients were satisfied with the information they had received (see Table 3). In the older age group, males and patients with a compulsory educational background were the most satisfied with the information given prior to admittance. Most satisfied with the fact that staff explained how the unit was organized were the older age group, the females and patients with a compulsory educational background.

The younger age group, the males and patients with a university education knew whom to contact to ask questions on the unit. The older age group, the females and patients with a university education felt that written information was important.

Of the males, 86% felt that they had been given information about their operation. Of those patients with a university education, only 52% felt that their questions had been answered. Forty-three (16%) patients stated that they had no questions regarding their operations.

When asked whether they had been given answers to their questions regarding their illness, 51 (18%) patients answered they had no questions. Of the remainder, 81% of the females and 82% of the males felt that their questions had been answered. Those who were least satisfied with responses to their questions regarding illness were those in the older age group (51%) and those with a university education (51%).

In this material it was not possible to establish a correlation between age, gender or educational background and opinions concerning information about the functioning of the unit, operations or illnesses. The only exception was a weak correlation ($C = 0.12$, $P = 0.05$) between age and the issue of whether the patients' questions concerning their illnesses had been answered.

5.3. Interpersonal care and emotional support

Two questions were put regarding the concept of interpersonal care (see Table 4). In the older age group, 91% felt that they had been well received. When asked whether staff had had the time to provide the patient sufficient attention and care, patients with a university education (62%) were least satisfied, while those patients with a compulsory education (76%) were most satisfied. No statistical correlation between age, gender, educational background and interpersonal care could be established.

Patients in the younger age group and patients with a university education were most satisfied with the staff's consideration regarding their anxiety, while the older patients were less satisfied.

Of the 91 patients who had felt worried, all patients felt that the staff had given them time. When asked whether they had been given the opportunity to talk about their feelings and experiences, 153 patients answered that they did not have this need. Of the remaining 122 patients, 111 patient was satisfied. Ten patients felt that they could not talk about their feelings, eight females and two males. Of these ten, four patients had a compulsory education, one a secondary education, four a university education, and one patient had not answered the question about education. There was a certain correlation ($C = 0.22$, $P = 0.001$) between age and whether or not a patient felt that the opportunity to talk about feelings had been given.

5.4. Pain relief

The patients were asked whether they felt they had been given pain relief within a reasonable amount of time. No correlation could be established regarding age, gender and educational background and this matter; 186 patients felt that they had been given pain relief within a reasonable amount of time and 46 patients did not answer the question.

The remaining 43 patients (18 females and 25 males) were not satisfied with their pain relief. Of the 43 patients 22 patients responded that they had received pain relief within 'a reasonable amount of time'. Twelve patients felt that they had 'occasionally received pain relief within a reasonable amount of time'. Nine patients had 'never received pain relief within a reasonable amount of time'. The age range was from 27 to 86 years. The educational levels were evenly represented in the group of patients not satisfied with the treatment of pain.

5.5. Need for assistance following discharge

Patients' perceptions varied regarding whether or not their discharge from hospital had occurred at the correct point in time (see Table 4). Patients in the older age group and patients with upper-secondary education agreed least with this statement. One patient felt that the discharge could have taken place sooner and 43 patients felt that they should have been kept in hospital longer.

Most patients seemed to know whom to contact at the hospital following their discharge. The older age group, females and patients with a university education were the least certain of who to call. Few patients called back to the unit to ask questions, but those who called most were patients in the younger age group and patients with an upper-secondary or a university education, (see Table 4). Those who called least were the older patients. Only a weak correlation ($C = 0.04$, $P = 0.05$) existed between whether the patient rang anyone at the hospital after discharge and their age.

6. Discussion

There are different views as to the value of studies such as this one in which patients express their opinions about care [4,7,21]. Should the patient or the profession decide the standards for care and treatment? Leino-Kilpi and Vuorenheimo states that whether the patient is right or wrong is really of no consequence; what matters is the patient's subjective experience [8]. Ford et al. write that the challenge for managers is to ask the right questions at the right time, of the right group of patients, to obtain the information they need and exceed patient expectations regarding service quality [23].

This study has shown that some of the patients' expectations have not been fulfilled. Does the health care system have the possibility to fulfill the patients expectations? Avis and Bond draw the conclusion that patient satisfaction has a role to play in service evaluation and consumerism [5]. Other studies have been conducted to evaluate an organization from the patient viewpoint [12,13,17], but no study describes a goal of a patient satisfaction rate of 100%.

Can patient satisfaction be equated with quality of care? There is no distinct answer to this question [9,10,20] Research thus far has targeted different areas of quality and satisfaction. Certain studies have observed the patients' view before and after changes in health care organizations [13,17]. Another type of study has measured patient satisfaction as an indicator of quality of care [8]. A third type of study has assessed patients' satisfaction and compared the results with answers from staff regarding patient satisfaction [18].

In this study, as in certain other studies, patient satisfaction has been investigated without defining satisfaction or standards for the care given [4,20]. If we had had a definition and/or standards we could have measured the outcome of the study against them. Hall and Dornan discuss the problem that different instruments include different aspects of satisfaction, and raise questions about the comparability of satisfaction from one study to the next [1,2]. We agree with Hall and Dorman that it is difficult to compare our results with other studies, since we do not use same instrument or have the same standard.

One of the study's weaknesses was that the questionnaire was only tested for content validity, but no reliability test was done. The response rate was good compared to other studies [7,10,12,13,17]. Boman and Ramström-Lindgren had a response rate the first year of 89% and the second year of 83% [13]. Their questionnaire was mailed to the patients one-week after discharge. Carr-Hill stresses that it is important that the period between the health care and the answering of the questionnaire should not be long, to reduce the chance of biasing [4]. Another Swedish study had a response rate of 50% when questionnaires were handed out to patients in the whole hospital [17]. No individual was made responsible for the questionnaires on each ward and the response rate varied from one department to another. Possibly actively involving nursing staff in research projects can lead to an increased level of motivation to deliver the questionnaire to the patient and also motivate the patient to answer it. Wilde et al. used nearly the same method as in this study [10]. The staff nurse gave the questionnaire to the patient at discharge, but the patient received no reminder. Wilde's response rate was 68%, and concluded that the response rate depended on the motivation of the staff administering the questionnaire [10]. Williams and Calnan

mailed a questionnaire to a random sample of people living in a particular health district and after a reminder their response rate was 62% [7]. Ehnfors and Söderström had a response rate of 54% and the questionnaire was mailed to all patients after discharge, a possible explanation for the low response [12]. A low response rate reduces the researchers ability to determine the views expressed by the non-responders and sheds doubt as to the value of the results obtained. In a study by Wenging two ways of distributing a questionnaire are compared: by hand-outs or by mail [24]. The result showed a higher response rate for the questionnaires that were handed out (72% compared with 63% for the mailed ones) [24]. The nurses in our study handed out the questionnaires themselves. This could be one reason for the high response rate. Hall and Dornan say that the researcher has to be aware that the patient is reluctant to criticize their care providers' [1]. Did patients answer the questionnaire because of dependence on the nurse? Possibly a reason for the high response rate. The major disadvantage in studies of patient satisfaction is the patient's dependency upon the caregiver. Because of this dependency it can be difficult for patients to criticize the caregivers and the treatment given [20,23]. Therefore, it is vital that patients partaking in patient satisfaction studies are aware that all data is treated with complete anonymity. The nurses informed the patients that their responses would be treated anonymously.

The results showed no major differences between answers when related to age, gender, or education and the statistical correlations are weak.

The population in this study was much older than in many other studies [1,7,15,18]. This could have effected the results. In previous studies older patient are more satisfied [4,7,17]. Lövgren and Williams and Calnan, has demonstrated satisfaction by younger and older patients, but the patients between 13 to 39 years of age expressed the lowest level of satisfaction in almost all respects [7,18]. Leino-Kilpi [8] could not show any relation between patient characteristics and satisfaction with care, while Williams and Calnan [7] found socio-demographic variables, such as age and gender, to be of importance when evaluating care. A review study by Hall and Dornan found a total inconsistency with how authors report patient variables [1].

It seems that gender in this study had a limited effect on the patients' responses. This is in accordance with findings by other authors [8,10,12]. In other studies females have been reported to be less satisfied than males [4,7,17,18].

In our material 61 (21%) of the respondents were university educated compared to Minnick et al. who had 11% [25]. As patients with a university education were less satisfied this could have influenced the results in general. The university group was younger and less

satisfied with the care than the other two groups. Minnick et al. found that units where the average patient had more education were less satisfied with the care [25]. Half of the patients had compulsory education. Are they more or less satisfied as a group? This question has not been answered by this or other articles. Different studies have achieved differing results. Minnick et al. suggests that hospitals in the USA tend to optimize care systems for a single type of consumer that have relatively simple needs. In their study, units where the average patient had a higher education, patients were found to have less favorable teaching scores [25].

The patients thought it was more important to meet the same doctor than to meet the same nurse on each hospital visit. The patients were also more familiar with the name of the doctor than that of the nurse, even though the patients met the nurses more frequently than they met the doctors. Boman and Ramström-Lindgren also found that nurse continuity was higher than doctor continuity in short stay surgery [13]. But the patients thought it more important to meet the doctors on each hospital visit. Bostrom studied the impact of nursing continuity and found nursing continuity to have a small but significant effect on patient satisfaction [14]. Continuity for the patient was important for the staff. But we did not manage to maintain it. In another organization the patient has to meet the same doctor and nurse during their hospital visits. One way of doing that is to have doctors who are stationed on the unit and just doing minor surgery for a period of time.

The results showed that the patients were satisfied with the information given. The group who tended to be less satisfied was the university educated group. Do we have capacity to take care of this group and give them sufficient information? This type of question has not been posed in previous studies and cannot be answered by this study, but should be of concern for others. Furthermore it is of importance to know what kind of information and help each patient needs to be secure in a health care environment. However, a study by Breemhaar has shown that the information patients received was not in proportion to their need [16].

The lowest scores were given for the question concerning whether or not doctors and nurses had time to provide sufficient attention and care. Only 62–76% of the patients were satisfied and least satisfied were the younger patient group and the patients with a university education. This field is important to the patient. Hall and Doorman ranks humanness, which includes interpersonal care, as the second aspect. In the area of need for emotional support the younger and the patients with a university education felt that the staff had been considerate regarding their anxiety. The correlation was weak between age and opportunity to talk about their feelings.

More than half of the patients stated that they had received pain relief within a reasonable time. Half of the remainder did not answer this question. The remaining 43 patients were not satisfied. That is 16% of the whole group. In this group the patient categories were equally represented. No explanation can be offered but clearly such results are not acceptable and the unit's treatment of pain must be improved. The results differ from those of two other Swedish studies. Boman and Ramström-Lindgren and Ehnfors and Söderström showed that only a few percent of the patients were dissatisfied with the pain treatment [12,13]. Donabedian states that in the future we have to determine clinically relevant behaviour in the health-care system [19].

The need for assistance following discharge varied in the different groups. Most of the patients knew whom to contact at the hospital after discharge. It was the groups of oldest patients, females and university educated patients who were the least certain of whom to call. Of the patients that made telephone contact with the unit most were from the younger and the university educated patient groups. Here the conclusion could be drawn that higher education leads to a better orientation in different organizations.

In our study 82% of the patients felt that it was correct to be discharged on the day on which it occurred equating to Boman and Ramström-Lindgren findings [13]. Kaag found that there was no difference in satisfaction between a group with a postoperative stay of 4–6 days and an experimental group, which had a post-operative stay of 2–3 days [26]. Our post-operative stay for similar groups was 1.5 days. Maybe the length of the post-operative duration is not important, providing that information and planning for discharge commences when the patient is admitted.

According to Lövgren et al. less than half of the patients said that they always or very often received information about access to help outside the health care organization [18]. Our study showed that 65% of the patients knew whom to contact after discharge. Ehnfors and Söderström, Lövgren et al. have show that younger patients were less satisfied with the discharge procedure than the older patients [12,18].

7. Conclusion

The unit's philosophy and methods of care embraced terms such as continuity, thorough information and active listening, pain relief and mobilization in order to return the patient to normal life as quickly as possible. In this study the patients were quite satisfied with the care given. The only area with a low rate was interpersonal care and emotional support (62–76%), the least satisfied being the younger patient group and the patients with a university education. No indication that

age or gender is significant for patient satisfaction has been found. This shows some agreement with the literature and of the opinion held by some nurses that patients with a higher education have a different view of the care given, than the view from the other patient groups. There was no statistically significant difference in satisfaction between patients of different age groups, gender and educational background. That could be due to the method, questionnaire and number of patients used in this study. A standardization of designs of studies and questionnaire is necessary for the future to be able to evaluate and compare patient satisfaction related to changes in the health care system.

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When to return to work after groin hernia repair

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Abstract

Inguinal herniorrhaphy is one of the most common operations conducted in general surgery. A questionnaire was prepared to ascertain the opinions of surgeons and general practitioners (GPs) about the recommended postoperative time-off work following inguinal herniorrhaphy and the factors that influence this decision. Questionnaires were sent to GPs of nine of the eleven Health Areas of Madrid and 262 Services of General Surgery in Spain. Both groups were influenced by factors that had nothing to do with a greater recurrence rate. An education programme geared at reducing long periods of unnecessary convalescence is required. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Time-off work; Inguinal herniorrhaphy

1. Introduction

Inguinal hernia repair is one of the most common operations conducted in general surgery. The immobilization period following inguinal herniorrhaphy has been reduced significantly throughout the 20th century, from the original 6 weeks mandated by Bassini [1] to the current standard of immediate mobilization. Despite this, the recovery time, as measured by the mean ‘time-off work’, has not been significantly shortened.

In spite of improvements in suture materials and the development of synthetic prostheses, general practitioners (GPs) as well as surgeons seem to subscribe to the erroneous idea that a prolongation of the convalescence time is an insurance against failure.

Following Baker’s study [2], carried out in the UK, we prepared a survey to find out the pattern of conduct most prevalent amongst surgeons and GPs with respect to the post-operative period. It also aimed to deduce the factors that influence doctors in their dealings with the ‘time-off work’ dilemma.

2. Patients and methods

Between December 1996 and February 1997 a questionnaire was sent out to all GPs ($n = 1420$) in nine health areas of Madrid and to 262 services of general surgery, both public and private, distributed throughout the country. The questionnaire contained the following questions:

1. Following an uneventful primary unilateral inguinal hernia repair in a male between 18 and 65 years of age, how many days off work do you recommend?
2. Do any of the following factors influence you when deciding the time-off work you recommend?
 - 2.1. Type of hernia repair (unilateral/bilateral; direct/indirect).
 - 2.2. Use of the mesh.
 - 2.3. Patient’s physical activity at work (heavy/moderate/light).
 - 2.4. Experience of the surgical staff (consultant/resident).
 - 2.5. Type of patient’s employment (self-employed or working for others).
 - 2.6. Patient’s desire to extend or reduce the recommended period off work.
3. Are you the one who usually signs the medical discharge for these patients?

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3. Results

The group of GPs returned a total of 434 questionnaires giving a response rate of 32.7%. From the group of surgeons, 500 questionnaires pertaining to 89 services of general surgery were returned: a response rate of 34%.

The mean 'time-off work' recommended by the GPs was 25 (range 7–68) days. In the surgical group this time was 27 (range 6–60) days.

Physical activity at work (98.5%), bilateral herniorrhaphy (74%) and the use of a prosthesis (53%) were the three factors with the greatest influence on the group of GPs. Only physical activity (94%) and bilateral herniorrhaphy (62%) were factors that influenced the prolongation of the convalescence period in more than 50% of surgeons (Table 1).

Though there exist numerous statistically meaningful differences between the groups, due to the minimal percentages of influence (< 30%) of numerous factors, only the differences in the type of hernia and in the patient's physical activity are worthy of emphasis (Table 1).

Only 28% of surgeons admitted being responsible for signing medical discharge papers for these patients, as against 85% in the group of GPs.

4. Discussion

There are many authors who consider that the risk of recurrence is not influenced by any of the previously mentioned factors (type of hernia, physical activity, type of surgery...) [3,4] or by 'time-off work' [5,6]. The musculo-aponeurotic tissue and the suture material are the two factors responsible for the resistance of the wound in the immediate post-surgery period [7,8]. On the other hand, the new prosthetic materials, by guaranteeing an extreme biocompatibility and ensuring the disappearance of tension in the repair zone of the hernia, make them equally suitable for patients with dystrophic tissues (recurrent hernia, old age). Likewise, they are suitable for highly active persons (athletes) or for those who need to return to work as early as possible (self-employed).

The level of understanding of these considerations will determine whether longer or shorter recovery periods are prescribed for each patient. This has important economic and social consequences because of the great number of hernia repairs carried out each year in any country [9].

Questions 1 and 2 of the questionnaire were posed to find out if the performance of both groups was in accordance with the consensus of specialists in hernia repair. It merits emphasis that only 1.5% of GPs and 4% of surgeons were not influenced by any factor and that physical activity at work was the one factor that influenced both groups the most. It can be established that the end of the convalescence period is dictated by the moment when patients can undertake their habitual physical activity in a comfortable way. According to Gilmore [10], this time falls between 1 and 4 weeks postoperatively, being individualized for each patient. However, our study demonstrated that more than 60% of physicians from both groups were not influenced by the patients' desires to shorten their convalescent period. Also, it is important to note that 85% of GPs were responsible for signing the patients' medical discharge papers. It is there where the importance of this group falls and this warrants greater reflection.

Similar results were found by Jarrett [11] in Oxford though in this study the time recommended by the GPs was twice that recommended by the consultants.

Although, the attitude of GPs shows a trend that leads to a reduction in the convalescent period in line with surgical thinking [12], we found that both groups were highly influenced by factors that had nothing to do with greater recurrence rates.

An intensive education programme aimed at reducing the present unnecessary long periods of post-operative convalescence following hernia repair is required.

Table 1
Influence of different factors in the time-off work after inguinal hernia repair

Influencing factors	General practitioners (n = 434)	Surgeons (n = 500)	Probability
<i>Type of hernia</i>			
Uni or bilateral	320 (74%)	317 (62%)	<0.001
Direct or indirect	133 (31%)	64 (13%)	<0.001
<i>Use of prosthesis</i>	231 (53%)	233 (47%)	<0.005
<i>Physical activity at work</i>	428 (98.5%)	470 (94%)	<0.001
<i>Self-employed or not</i>	54 (12%)	114 (23%)	<0.001
<i>Surgical experience</i>	36 (8%)	82 (16%)	<0.001
<i>Patient's desire</i>			
To extend the time-off work	95 (22%)	102 (20%)	0.63
To reduce the time-off work	176 (40%)	229 (46%)	0.12

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Patients' experience of oral day case surgery: feedback from a nurse-led pre-admission clinic

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Abstract

A nurse-led pre-admission clinic (PAC) was introduced in Oral and Maxillofacial Surgery in 1996 to help reduce patient failures and cancelled operations on the day of admission and to improve pre-operative patient assessment and education for oral day case surgery. In order to investigate patients' perceptions of their experience and to ascertain their views on their PAC appointment, a questionnaire was sent to 178 day case patients operated upon between October 1997 and January 1998. Questions were asked relating to details of their PAC visit and subsequent surgical experience, with additional comments invited. Eighty eight completed questionnaires were returned (49% response rate), which showed a greater than 90% satisfaction with the PAC. Patients reported fewer worries, increased confidence and an improved understanding of both their surgery and peri-operative care following PAC attendance. Eighty eight percent of the additional comments reported a favourable experience. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Day surgery; Pre-admission clinic; Nurse-led

1. Introduction

The Oral Surgery Day Case Unit at Newcastle Dental Hospital provides a wide range of surgical and dental treatment (e.g. removal of impacted 3rd molars, cyst enucleation, biopsies) under general anaesthesia for approximately 2500 adult and paediatric patients each year [1].

A nurse-led pre-admission clinic (PAC) was introduced in 1996 to help reduce patient failures to attend and cancelled operations on the day of admission and to improve preoperative assessment and education. This clinic has become a successful and versatile tool in both management and validation of day surgery theatre lists and is now an integral component of clinical care in the unit [2].

2. Method

In order to investigate patients' perceptions of their experience during day surgery and to ascertain their views on their PAC appointment, a questionnaire was sent to 178 consecutive day case patients operated upon between October 1997 and January 1998. Patients were told that all completed questionnaires would be analysed anonymously, and eleven questions were asked relating to details of their PAC visit and subsequent surgical experience (Table 1). Patients were asked to tick the most appropriate response to each question, and space was provided for any additional comments that they might wish to make. Pre-paid envelopes were enclosed to encourage return of the questionnaire.

Response data was collated and entered on a computer database for analysis.

3. Results

Eighty eight completed questionnaires were returned (a 49% response rate). There was no obvious or consis-

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tent explanation for failure to return questionnaires, although in a small number of cases patients had changed address since their date of surgery.

In 94% of patients PAC assessment took less than 30 min and all patients thought this was appropriate. All were satisfied with procedural explanations and 99% found the nursing staff approachable and helpful and felt able to ask any questions about their forthcoming surgery). No reason was given for the one negative response to this question.

Fig. 1 illustrates data from a further three replies. Over 80% of patients reported that PAC attendance helped to ease their worries about forthcoming surgery and increased general confidence and relaxation about admission (Fig. 1a and b), whilst over 90% of patients felt that their visit had helped them understand more clearly the purpose of their surgery (Fig. 1c).

Fig. 2 summarises replies to two aspects of peri-operative care covered during PAC. Over 90% of patients reported that they more fully understood the importance of fasting pre-operatively after clinic attendance (Fig. 2a), whilst 85% felt they understood their after-care instructions better (Fig. 2b).

Table 1
Patient questionnaire

1. How long did your assessment/interview take? Less than 10 minutes/11–20 minutes/21–30 minutes/> 30 minutes
2. Was the length of your assessment/interview Too short/Too long/About right
3. Was the procedure explained to your satisfaction? Yes/No
4. Were you able to ask the nurse any queries that you had? Yes/No
5. The PAC eased any worries I had about my forthcoming surgery Strongly agree/Agree/Disagree/Not sure
6. The PAC made me feel confident and relaxed about my admission Strongly agree/Agree/Disagree/Not sure
7. The PAC helped me understand the purpose of my admission Strongly agree/Agree/Disagree/Not sure
8. The PAC helped me understand the importance of fasting before my operation Strongly agree/Agree/Disagree/Not sure
9. The PAC helped me understand the after care instructions Strongly agree/Agree/Disagree/Not sure
10. The PAC helped me make an appointment suitable to my circumstances Strongly agree/Agree/Disagree/Not sure
11. Did you understand the purpose of attending the PAC prior to admission? Yes/No

Only 50% of patients agreed that PAC helped them book an appointment suitable for their circumstances (Questions 10 and 11 in Table 1), although over 95% of respondents clearly understood the purpose of attending PAC prior to day stay admission.

Forty two additional comments were received, 37 (88%) of which were favourable, whilst five patients (12%) reported unfavourable experiences. Table 2 summarises examples of both favourable and unfavourable comments.

4. Discussion

The role of the pre-admission clinic in improving patient throughput and reducing failure rates for both day case and in-patient oral surgery has been well documented [2,3]. In our day unit at Newcastle Dental Hospital, the clinic has proved extremely popular with all nursing, surgical, dental and anaesthetic colleagues who regularly utilise the clinical facilities.

In this particular investigation, patients' experience of, and opinions on, the effectiveness of the nurse-led PAC during their treatment episode were sought by means of a postal questionnaire.

The 49% response rate was disappointing as this may have introduced a favourable bias to the results. Non-responders may have had more unfavourable experiences, but perhaps did not care to report them. In some cases the lack of response may have been due to the length of time (in some cases nearly 6 months) between surgery and issuing the questionnaire. A small number of patients were identified as having changed address since treatment, so that the questionnaire presumably never reached them. Nonetheless, the vast majority of responses received were highly favourable confirming the continuing success of the PAC in improving patient

Table 2
Additional patient comments

Favourable

- 'I found (the PAC) informative and the nurse a caring individual who, as well as fulfilling her medical regulations and information, reassured any outstanding worries'
- 'I think this clinic is a great way of getting through the admissions a lot quicker and I was pleasantly surprised how quickly it enabled me to have the operation done'
- 'Very quick and efficient service. Appointment date given for admission on the day of assessment, which was helpful'
- 'All staff were marvellous and explained everything clearly. I have nothing but praise for them, however I wouldn't like to meet them in the oral surgery department again! Once was enough!'

Unfavourable

- 'It was disappointing to have to make as many separate trips when the assessments were only 10–20 minutes'

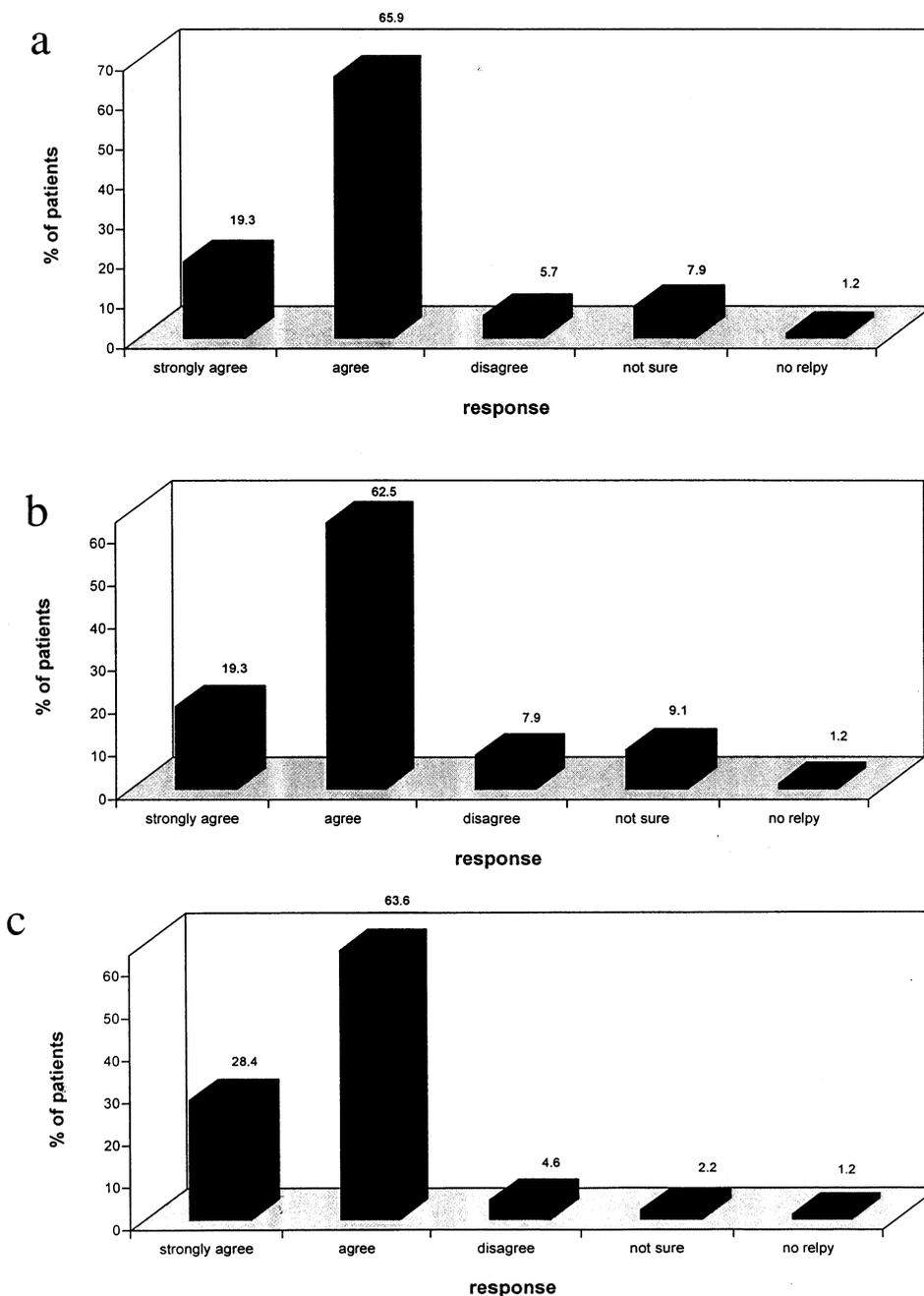


Fig. 1. Patients' responses to the role of PAC in pre-operative preparation: (a) PAC eased my worries about forthcoming surgery, (b) PAC made me feel confident and relaxed about my admission, (c) PAC helped me understand the purpose of my admission.

care and throughput for oral day stay surgery following its introduction in 1996 [2].

From the patients' perspective, PAC attendance helped to reduce anxiety, improve patient confidence, and facilitate understanding of peri-operative care arrangements. Nearly all respondents from this audit thought the clinic an important and valuable part of their admission process.

A frequent criticism of pre-admission clinics is the need for additional hospital attendance prior to sur-

gery, and although one of the unfavourable patient comments highlighted this (Table 2), the vast majority of patients welcomed the opportunity at PAC to discuss their care with a sympathetic nurse and to have some choice in arranging a date for surgery.

The nurse-led PAC is now well established in the department, and has greatly improved the admission process for oral day surgery in the Dental Hospital. Using an established code of practice and anaesthetic guidelines, the clinic has helped to ensure that appropri-

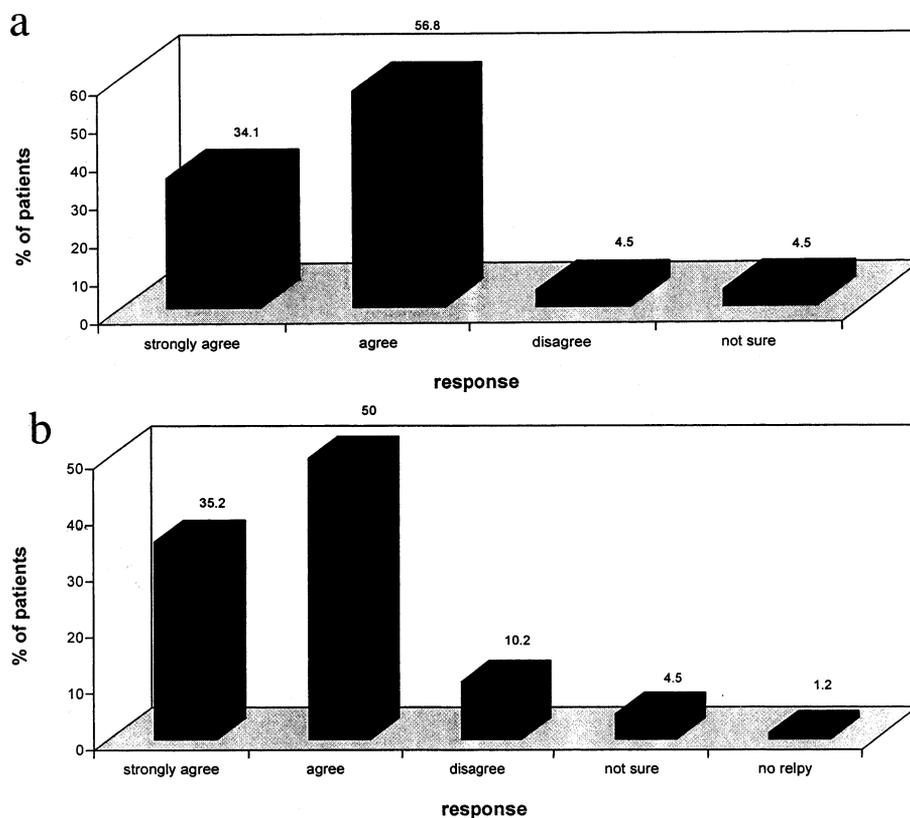


Fig. 2. Patients' responses to the role of PAC in peri-operative care: (a) PAC helped me understand the importance of fasting before operation, (b) PAC helped me understand after care instructions

ate surgery is carried out, medical and domestic problems are identified and resolved and a greater number of operations are performed. Whilst optimising the efficiency of day unit resources is an important goal, episodes and improving the overall quality of patient care are also of considerable significance to ambulatory care professionals.

5. Conclusions

Use of the nurse-led PAC has greatly improved the admission process for oral day case surgery, optimised theatre utilisation, reduced patient anxiety and enhanced both the quality of patient care and overall patient satisfaction.

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Nurse directed pre-admission clinics

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Abstract

The purpose of this article is to highlight the importance of the pre-admission process and that experienced nurses can play a vital role. The different methods of pre-operative screening will be discussed. The article will demonstrate that the Nurse Directed PreAdmission Clinic at the Day Surgery Unit, Campbelltown is effective. The objectives of the clinic to provide best possible patient care, minimise cancellations and complications, ensure patients have a well planned stay and that the post discharge and recovery period are supported will be demonstrated. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Nurse directed; Pre-admission; Clinic

1. Introduction

A Nurse Directed Pre-Admission Clinic has been in operation at Campbelltown Hospital, Sydney, Australia, for the past 10 years. Campbelltown Health Service has a dedicated Day Surgery Unit which is freestanding within the hospital grounds. The Unit consists of two operating theatres, an endoscopy procedure room, admission, recovery and discharge areas as well as the pre-admission clinic (PAC). The Day Surgery Unit is responsible for its own admissions and has a separate booking list from the main hospital. Over the past 10 years, the average number of cases treated each year was 4300. A wide range of surgical procedures are performed from toenail removal to laparoscopic tubal ligation, removal of impacted wisdom teeth and squint surgery. The Unit services a wide geographical area of South West Sydney incorporating rural and urban areas. The objectives of the PAC are:

- to provide the best possible patient care, in order to ensure a successful outcome,
- to minimise cancellations and complications on the day of surgery,
- to ensure patients have a well planned and trouble free stay in the Unit,

- to support the post discharge and recovery period by effective patient education.

It is vital that nurses establish a congruent relationship with patients and the preadmission communication plays an important role in this. Good preparation and education for the entire episode of care can only have a positive effect on the patient and the staff. Apfelbaum (1989), from the University of Chicago Hospital wrote 'We are looking to provide quality care for our patients by resolving problems in advance of the day of surgery and thereby minimise the number of cancellations and the number of complications' [1].

Good pre-operative evaluation reduces cancellations and complications, thereby increasing operating theatre usage and facility profitability [2,3]. Day surgery patients have special needs as they are more in control of their own care than inpatients. They need accurate information and it is the nurse's role in the PAC to provide this.

Patient assessment at Campbelltown is conducted within 2 weeks of the day of surgery. The patient is interviewed by an experienced Registered Nurse with the aid of a comprehensive anaesthetic questionnaire. The nurse is able to highlight any problems and consult with the anaesthetist who will be attending the patient during surgery. Pathology tests, ECG's or X-rays can be ordered by the nurse, for review by the anaesthetist prior to surgery. Patients are seen by the anaesthetist on the day of surgery. Patients who have been identified

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by the nurse to be at risk will have an appointment prior to the day of surgery. Unsuitable day surgery patients are also identified and arrangements made for their procedures to be done as full hospital admissions.

2. Pre-operative screening

A report on the First Continuing Medical Education Meeting states that a team approach ideally includes:

1. assessment by the surgeon or proceduralist
2. nursing assessment — oral interview, questionnaire, record of vital signs
3. clinical examination and interview by an anaesthetist [4].

A comprehensive referral by the general practitioner could also be added to this list. Penn, wrote that day surgery units need to work in close liaison with general practitioners, who having a better insight into the patient's medical and social history, should ideally indicate on their referral letters, if the patient is suitable for day surgery [5]. As the Unit services such a broad geographical area it is necessary to use pre-operative screening. There are several methods of pre-operative screening. These may be used separately or in conjunction with one another. (1) Telephone interview, (2) Facility visit -assessment clinic and pre-admission interview, (3) Formal visit with the anaesthetist as arranged by the surgeon, (4) Visit on the morning of surgery.

2.1. Telephone interview

This is a particularly good tool where distance is a factor. If the patient is unable to attend the PAC in person, the assessment is conducted via the telephone using a comprehensive health questionnaire. The episode of care is planned at this time, pre and post operative instructions are given and home care arrangements are confirmed. The patient is asked to attend their general practitioner for specific tests if required. The assessment nurse then contacts the general practitioner and discusses the necessary tests and arranges to receive the results before the day of surgery. Approximately 20% of clinics at the present time are telephone interviews.

2.2. Facility visit

This method of pre-operative assessment is used for 78% of patients at Campbelltown. The registered nurse with the aid of the health questionnaire is able to identify patients who may be at risk. The registered nurse refers patients with chronic medical disorders or other risk factors to the anaesthetist for further review

prior to the day of surgery: remaining patients are seen by the anaesthetist on the day of surgery. This system saves time yet assures comprehensive assessment of all patients, and allows the anaesthetist to focus on those patients with specific medical problems [4]. Assessment nurses become very skilled at identifying those patients who may be at risk. In addition, the questionnaire should identify patients who may require further assessment to be classified correctly. Millar et al., [6] identified that patients should be:

- properly prepared for day surgery
- not cancelled on the day of surgery for a preventable reason
- safe to undergo the procedure
- able to go home safely.

2.3. Formal visit with the anaesthetist

At the initial visit with the surgeon or proceduralist, a patient may be identified to be at risk or have special requirements. The surgeon will then make an appointment with the anaesthetist who will be attending the patient on the day of surgery. This will affect $\approx 2\%$ of patients at the present time.

The Day Surgery Report also states that 'nursing assessment should not be seen as a replacement for the clinical evaluation of the patient by the anaesthetist which is both mandatory and pivotal to optimum management of each day care patient' [4].

There needs to be good communication between the nurse and the medical staff. The assessing nurse needs to be able to contact the anaesthetist or surgeon and discuss any concerns that have been identified. Nurses should not adhere to rigid rules but be prepared to be flexible as the need arises.

A survey of the eleven anaesthetists at Campbelltown Hospital confirmed a very high level of satisfaction with the present system. They recognise that effective interaction and communication between the clinic nurse and the medical staff as central to the success of the PAC. They acknowledged the expertise of the nurse in the assessment of patients and the time saving for them.

2.4. Visit on the morning of surgery

When used alone this method has a high incidence of cancellations and associated problems for the patient and is not used at Campbelltown Hospital. A patient may take time off work and arrange transport, only to have the planned surgery postponed or deferred, and the patient has to start all over again. Alternatively, the patient may be found unsuitable for day surgery and require admission to hospital. Cancellations reduce operating theatre utilisation and cost effectiveness.

3. Patient education

Good patient education has many advantages. It alleviates patient's fear and anxiety by increasing knowledge and control and patients also have the opportunity to ask questions. Patients gain the knowledge and confidence to be responsible for their own recovery. Good education aids patient satisfaction and results in the desired clinical outcomes. Health education empowers patients to share the responsibility for their own health care [7].

Studies by Pica-Fury [8], Swindale [9], Kempe and Gelarzis [10], have found that day surgery patients were more satisfied with their health education than inpatients, and that nursing input influences the anxiety level of patients. Sutherland wrote that if a nurse is able to decrease a patient's anxiety level pre-operatively, it has been shown that this reduces the amount of anaesthesia needed, the amount of post-operative pain and decreases the recovery time [11]. Sutherland referred to Hayward (1995) when she noted that it had been suggested that lack of information has a direct bearing on the anxiety level suffered. This is useful information when nurses are required to justify the time taken to talk to patients before the day of surgery [11].

Patients need orientation to the unit, the clerical staff, the nursing staff, the procedure in the Day Surgery Unit and special orientation is required for paediatric patients, e.g. tour of the theatre, day surgery colouring-in book. Children are less fearful if the surroundings are familiar to them.

The Draft Day Surgery Policy of the Department of Health advocates greater attention being paid to comprehensive pre-admission protocols which can incorporate Nurse Directed Pre-Admission Clinics and pre-operative patient questionnaires [12]. These are used by the registered nurse in the PAC as the basis for the clinical interview. The policy also states an important factor contributing to best practice is where the staff see themselves as one component of a larger process which commences before the patient presents on the day of the procedure. This process includes a structured education program, pre-operative information packages and discharge information (which ideally is discussed when the admission is planned) [12]. The pre-admission interview is the best opportunity not only to give instructions, but to actually plan the patient's episode of care from beginning to end. Written information is also useful to re-inforce verbal instructions and should be readily available both pre- and post-operatively to gain maximum co-operation. Day surgery patients require more education and support than inpatients, as they are to go home and care for themselves with the help of relatives or friends, a few hours after surgical intervention and a general anaesthetic. The nurse conducting the pre-admission inter-

view recognises these needs. Sutherland noted that many patients have unrealistic expectations and anticipate being perfectly fit before discharge because of a short hospital stay [11].

Instructions for the day of procedure include: confirmation of the booking, fasting instructions, medications (what to take, what not to take), escort and home care arrangements, dress (what to wear and to bring), colds and illness, shaves and preps, diets, special instructions peculiar to procedure, e.g. physiotherapy prior to arthroscopy, instructions for children, recovery expectations, post discharge instructions are also discussed at this time. Millar, Rudkin and Hitchcock refer to several studies which have demonstrated that preadmission clinics reduce cancellations, investigations, overnight admissions and costs [6].

The Day Surgery Report lists the following risk factors which must be identified and also some considerations for the assessment of chronic disease.

Risk factors include: concomitant medical disorders, previous anaesthetic problems, obesity, special preoperative or postoperative care, extreme anxiety, significant psychiatric problems, severe intellectual disabilities, no responsible care-giver at home, excessive travelling distance, inability to follow instructions, a high requirement for nursing care and an unreliable or uncooperative patient [4].

Criteria used for the assessment of chronic disease are:

1. stability of disease — four levels which are stable, labile, deteriorating and previous problems with anaesthesia and surgery.
2. Extent of disease — complications, associated conditions.
3. Current therapy — pharmacodynamics, drug interactions, side effects.
4. Ability to cope at home — responsible adult at home, insight and interest [4].

In the present economic climate more complex procedures and 'less fit' patients are being included on day surgery lists. Rudkin states that "Streamlined assessments are important, to deal with the greater patient numbers and 'less fit' patients presenting for day surgery Individual day surgery facilities must modify an assessment system to suit their facility capacity and patient needs. Emphasis must be placed on the selection of staff all of whom should be skilled in communication [13]."

Rudkin advocates patient screening by nursing and medical staff which can clearly identify the 'less fit' patients, facilitated by structured interviews, either in person and/or by phone, a written questionnaire and in the future a computerised questionnaire. To prepare the patient fully for their day of surgery brochures and videos are useful and in the future computer generated individualised instructions will assist. Teamwork and streamlined methods will minimise cancellations, surgical delays and post operative discharge problems [13].

Sutherland states that a logical, organised and problem-solving approach to care is essential when large numbers of patients are treated quickly [11].

4. Conclusion

The Nurse Directed Pre-Admission Clinic has proven to be effective at Campbelltown as indicated by the consistently low hospital admission rates of between 0.6 and 1.2% over the 10 years. Also the rate of avoidable cancellations on the day of surgery is low at 1 in 417 (Campbelltown Hospital Statistics, 1997). Careful pre-operative screening and patient education ensures a well planned episode of care with a good outcome. Those of us who work in day surgery need to be good communicators, flexible and proficient. Since our time with our patients is so limited we need to get it right. At Campbelltown, we believe our Nurse-Directed Pre-Admission Clinic plays a valuable part in the quality of care of our patients and the efficiency of our unit.

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