

The Walk In Walk Out hernia clinic: A study of its cost effectiveness

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Abstract

Background: There is a significant amount of wastage and duplication in the treatment of routine operations such as hernias. We have assessed the cost savings of elective inguinal herniorrhaphy performed in a "Walk In Walk Out" (WIWO) hernia clinic as compared to day case or inpatient herniorrhaphy under general anaesthesia.

Methods and Results: This study includes 1106 patients listed for elective inguinal herniorrhaphy. 44.9% either did not attend or their operation was cancelled. There is a potential saving of approximately £700,000 per year by using the WIWO clinic protocol.

Interpretation: The WIWO protocol if followed for the majority of abdominal wall hernias could show very significant financial savings.

Keywords: Inguinal hernia; Herniorrhaphy; Local anaesthesia; Walk in walk out clinic; Cost effectiveness.

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Introduction

In the current environment, when the majority of National Health Service (NHS) Trusts are in heavy debt, it is imperative that we find ways to provide safe, efficient, cost effective and patient centred healthcare. A significant amount of resources are wasted because a number of patients either "Do Not Attend" (DNA) or their operations are cancelled due to bed shortages, restricted theatre time, emergencies admitted the night before, or they are found to be unfit on the day of surgery (Table 1) and due to poor organisation. Although inguinal herniorrhaphy under Local anaesthetic (L.A) has been shown to be associated with quick recovery, fewer complications and improved patient satisfaction, less than 10% of the operations are carried out under L.A in the NHS.

Nearly 120,000 new groin hernias are diagnosed every year in England. Almost 80,000 are referred to hospitals and 40,000 are

advised against surgery due to high co-morbidity (patients who are likely to occupy inpatient beds). [1] In a normal case scenario (Fig 1) a patient makes a minimum of 3 hospital visits and waits an average of 41–53 weeks (time from first visit to general practitioner to time of surgery) for herniorrhaphy. In our WIWO hernia clinic [1] we have reduced this into a two-step procedure (Fig 2) and by allowing the patient to choose their own date of operation to fit in with their life and work, we have reduced the DNA/Cancellation rate from 44.9% to <3%. The patients in the WIWO clinic have their consultation and operation in one single visit and leave the hospital 2–3 hours after operation. They do not need a regular follow up but have open access to the surgeon through his secretary. This reassures the patient and allows the surgeon to keep a check on his complications.

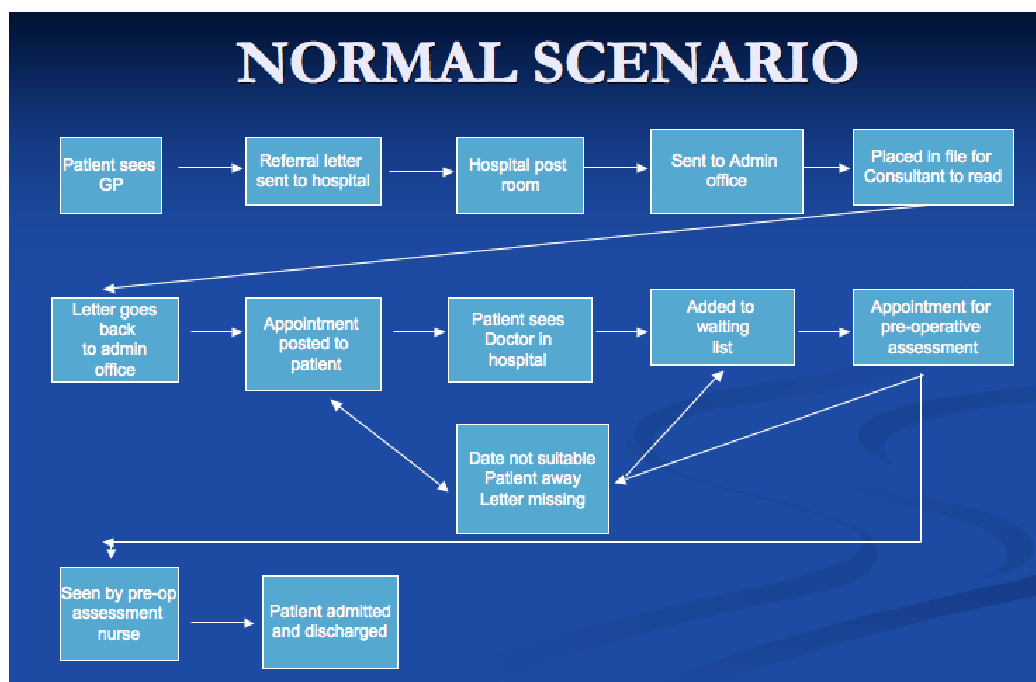


Figure 1

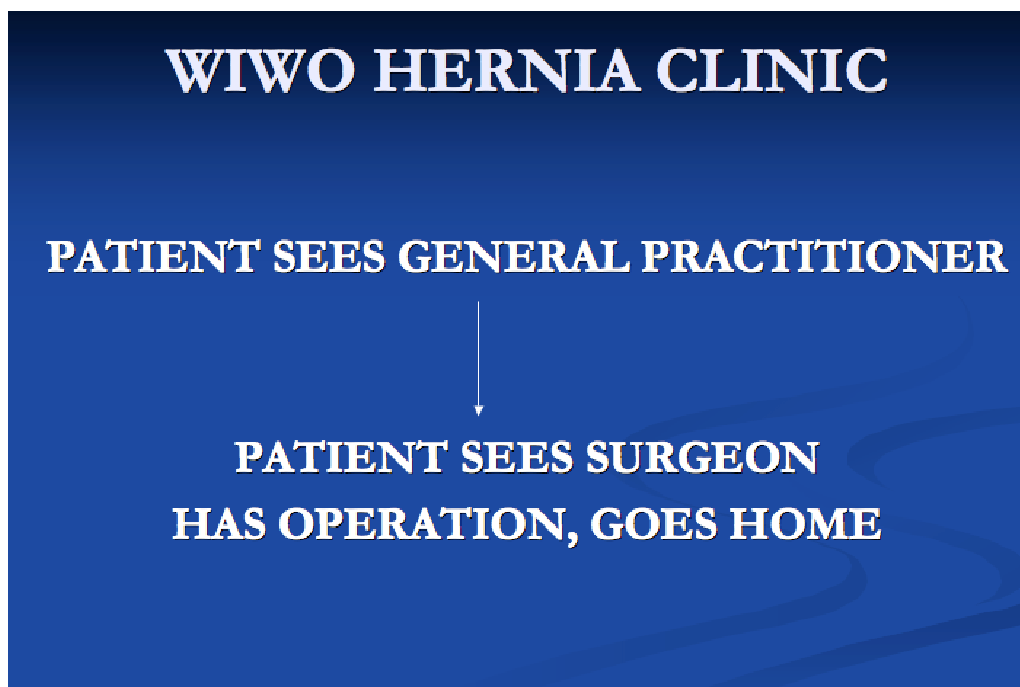


Figure 2

Patients and Methods

In this retrospective study, we examined the hospital records and operation notes of all adult patients (age 16 years+) who were given a date for inguinal herniorrhaphy between 1st March 2005–28th February 2006. We have studied the cost of inguinal herniorrhaphy under general anaesthetic (G.A) as a day case and as an inpatient as compared to the operation under local anaesthetic (L.A) in the WIWO hernia clinic. The type of treatment was the choice of the individual patient in conjunction with their general practitioner. A record was made of the DNA/Cancellation rates in the three groups and its financial implications. Data was collected from the computer generated data sheets and operation notes of all the patients. The perspective used in the cost analysis was from the financial officer of our Ambulatory Care and Diagnostic Centre (ACAD) and all the concerned departments involved. The costs of drugs and resources were calculated based on the actual acquisition cost to the centre. These included costs of pre-operative outpatient consultations, investigations, preassessment clinics; anaesthetic sessions, anaesthetic drugs and consumables, postoperative stay and follow up consultations. The cost of the pre-assessment clinic was calculated on the basis of investigations done, nursing and junior doctor's time and resources used.

Results

A total of 1106 patients were given a date for inguinal herniorrhaphy. 497 patients (44.9%) of the total, either DNA or were cancelled on the day after admission for various reasons (Table 1). The remaining 609 patients underwent a standard tension free mesh repair. 122 patients were treated in the WIWO clinic, 173 under G.A as a day case and 314 under G.A as inpatients. The patients operated on as inpatients stayed an average of 1.5 nights (Table 2).

The total cost of inguinal herniorrhaphy in our trust as a day case under GA is £1440. The same operation as an inpatient cost £1890 (£1440+£450). £450 is the average cost of an extra stay of 1.5 nights @ £300 per night. In the WIWO clinic the total cost is £1029 (Fig 3).

Table 1 Reasons for cancellations.

Anaesthetist not available/sick	1
Changed date admission (admin)	140
Error in input	54
Operation not required	3
Patient "DNA"	44
Patient already treated	5
Patient cancelled TCI	129
Patient not fit	77
Surgeon cancelled operation	3
Surgeon not available	24
Patient refused operation	1
Session over run	7
No reason given	1
Bed shortage	7
Further investigations required	1
Total	497

We have recorded a financial saving of £411 per patient, when a patient was operated on according to the WIWO clinic protocol, as compared to when operated under G.A as a day case. This resulted in a total saving of £50,142 over the year (£411 per patient x 122 patients). However, when compared to the cost of operation as an inpatient, the savings totalled £105,042 (£861x 122).

Scrutiny of the operation notes of all the operated patients revealed that 90% of the patients operated on as day cases or as inpatients under G.A were suitable to have their operation in the WIWO hernia clinic. If all these patients were treated according to the WIWO clinic protocol, we estimate an additional potential saving of £308,247

Table 2 Duration of inpatient stay.

No. of patients	Duration of stay (days)	Total no. of bed days
246	1	246
38	2	76
13	3	39
6	4	24
1	5	5
5	6	30
2	7	14
2	9	18
1	15	15
314		467

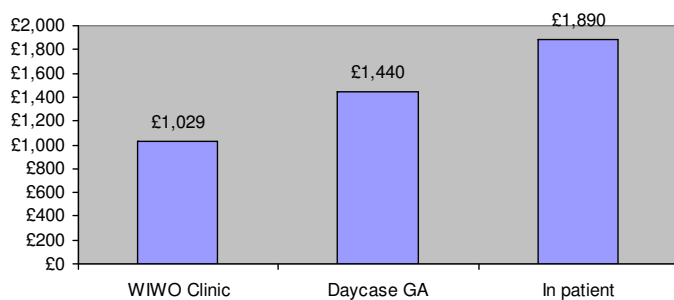


Figure 3 Cost of hernia repair.

(£243,663 from inpatient cases and £64,584 from day cases).

Total treated as day cases under G.A	173
Total suitable for WIWO clinic (90%)	156
Potential saving	£414x 156 = £64,584
Total treated as inpatient	314
Total suitable for WIWO clinic (90%)	283
Potential savings	£ 861x283 = £243,663

These real and potential savings shown above do not include the potential cost savings of £349,391 (@ £703 per patient) from lost revenue due to DNA/Cancellation (Table 3). By giving the patients the choice to decide the date of their operation, we have reduced the DNA/cancellation rate, from 44.9% to <3% in the WIWO hernia clinic (Fig 4).

Discussion

Increasing demands on the hospital trusts to keep to targets and stay within the confines of limited resources has forced the medical profession to develop more efficient, cost effective and, above all, patient centred treatment protocols for routine surgical procedures of which inguinal herniorrhaphy is one of the commonest. It comprises 12% of elective surgical procedures in the UK and is one of the six elective procedures with the longest waiting times. It has been estimated that it costs the health service in England and Wales nearly 15 millions pounds per year². Reducing the number of unnecessary hospital visits, routine pre-operative investigations and allowing the patients to choose the date of their procedure to fit in with their life and work, is one significant way forward in making huge financial

Table 3 Cost of inguinal herniorrhaphy.

	Cost
Outpatient clinic	£177
Pre-assessment with investigations	£128
	BREAKDOWN: ECG £47, CXR £60, FBC / U & E £7, PRHO £7 , NURSE £7
Correspondence	£17
Anaesthetic session /patient	£65
Anaesthetic con- sumables	£24
Recovery nurse	£16
Bed used/ day	£300
DNA/cancellation cost	£703 (177+128+17+65+16+300)

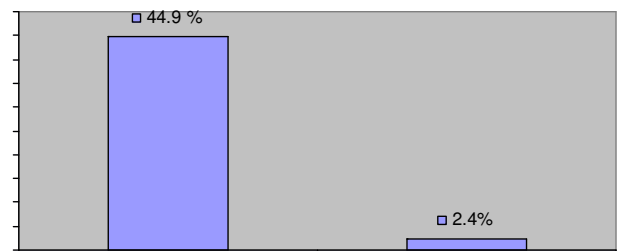


Figure 4 DNA cancellation rates.

savings for the NHS, without compromising patient care.

In 2005-2006, the majority of NHS Trusts have been in major financial crisis with reported debts of up to 20 million pounds. There have been job losses, bed closures, hospital closures and curtailment of services. A significant amount of money is wasted when patients DNA or are cancelled by the hospitals on the day of surgery. We have shown that for routine procedures such as herniorrhaphy, if the patients are given a choice of making an appointment for both consultation and the operation, on the dates that best suit their life and work, rather than being dictated to by the hospitals, the number of DNA/cancellations and its associated cost in wasted resources can be reduced dramatically. Our study has shown that in our Trust there is a potential to save approximately £657,638 in one year from inguinal herniorrhaphy alone. If the same WIWO hernia clinic protocol was adopted for other hernias such as umbilical, para-umbilical and epigastric and across all the NHS trusts, the savings could run into millions of pounds every year.

In an extensive literature search, we have not been able to find any publication giving a detailed breakdown of the costs involved in hernia repair as a day case under GA and LA. Most of the studies point out that hernia repair done under local anaesthesia is a low cost procedure and is the most cost effective method though the cost saving differs in different regions.

A study in Denmark by Callesen et al reported a cost reduction of £160 per patient in inguinal hernia repair done under LA as compared to the cost under general/regional anaesthesia. The authors, as in our study, reported an average of £50 savings per patient by avoiding unnecessary routine pre-operative investigations.[3] We

have in addition dramatically reduced the DNA/cancellation rate from 44.9% to <3% by giving the patients the choice of fixing the date of their operation. This has very significant potential financial implications.

In Belgium Van den Oever R and Debbaut B reported that the mean treatment cost of inguinal herniorrhaphy was 53,704 BEF for inpatients as compared to 30,510 BEF, as a day case under GA and 27,501 BEF for outpatients under LA. This shows nearly 10% savings for inguinal herniorrhaphy under LA as compared to day case under GA and 49% compared to under GA as an inpatient.[4]

Song D et al in the USA reported an extensive study comparing the cost of inguinal herniorrhaphy under LA and under GA. They have shown a significant difference in total anaesthetic costs which were \$132.73 +/- 33.80 in the LA group as compared to \$172.67 +/- 31.03 in the GA group. [5] However this study did not compare the total cost of the operation. In addition, the authors used intravenous propofol sedation in patients undergoing inguinal herniorrhaphy under LA. This we feel is unnecessary and requires the presence of a qualified anaesthetist in the operating theatre, a cost that we have been able to save, as the surgeon himself induces the nerve and infiltration block.

Studies done at the British Hernia Centre in England also show that the direct and indirect costs of anaesthesia for inguinal herniorrhaphy are lowest when using local anaesthesia with or without sedation. [6, 7] However, no details of the costs were mentioned.

Our study concurs with the work of Sanjay et al.[8] in that patients with unilateral reducible inguinal hernia can have their hernias operated in the WIWO clinic, irrespective of their ASA status.

Our study has shown significant cost savings and potential savings for inguinal herniorrhaphy, when performed according to the WIWO clinic protocol. If other abdominal wall hernias such as umbilical, para-umbilical and epigastric are repaired the same way, there is a potential for saving of millions of pounds.

Conclusions

Herniorrhaphy performed according to the WIWO hernia clinic protocol, is patient centred, extremely cost effective and is suitable for the majority of patients with significant co-morbidities who would normally occupy acute inpatient beds. This protocol if repeated across all the NHS trusts and for the majority of abdominal wall hernias could show very significant financial savings and release inpatient beds.

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