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Correct site surgery - are we up to standard?

Mini Review

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Abstract: To examine the impact made on safe surgical practice by the introduction of correct site surgery documentation in a children's hospital containing a surgical unit in South Yorkshire. A retrospective audit of randomly selected case notes of children attending the hospital for an ENT/Plastic surgery/Orthopaedic/General surgical procedure during a period in 2006 or 2008. Outcome measures included the total, correct and legible completion of correct site surgery documentation pre-operatively. Significant improvement was noted between the 2006 and 2008 audits in the amount of patients being correctly marked (33% vs. 91%), however there were no forms in either study that were fully and correctly completed. Legibility of the forms also improved markedly between the studies (33% vs. 98%). The completion of correct site surgery forms improved with greater publicisation of the forms, however the practicality of the numbers of people required to complete the forms needs to be reviewed. The international introduction of such forms will generate valuable data as to the future utility of these checklists.

Keywords: *Correct site surgery • Errors • Theatre check lists*

1. Introduction

Incorrect-site surgery is a subject that is generating much media attention. Although incorrect-site surgeries are rare [1], there have been numerous such incidents in the UK, and around the world. One paper suggests that most surgeons around the country have had some experience of incorrect-site surgery [2], possibly resulting from the variety in surgical practice and varying practices for marking patient's preoperatively. In 2005, the NPSA (National Patient Safety Agency) conducted a study based on this problem, and found that there was no unified method across the country for ensuring that surgery is completed on the correct site ('correct site' referring to the correct side or anatomical position or level, i.e. the correct finger on the correct hand of the patient, and indeed on the correct patient) [3]. The results of this study were published in 2006, and guidelines were issued for nationwide implementation.

Subsequently, in January 2009, the WHO launched their second 'Global Patient Safety Challenge' entitled "Safe Surgery Saves Lives". As part of this program, they issued a 'surgical safety checklist' that includes methods to ensure the correct patient has the correct operation. The surgical checklist has been adapted by the NPSA, and is to be implemented in all trusts in England and Wales by February 2010.

2. Material and Methods

After the NPSA alert in 2006, 'correct-site surgery' (CSS) documentation was introduced at a hospital in South Yorkshire. The CSS information was incorporated into an existing pre-operative checklist to avoid additional forms. The CSS documentation must be signed by a number of health professionals to confirm that they all agree to proceed with the operation on the marked side or site of the body.

Health professionals who are required to sign the documentation include:

- The marking surgeon
- The operating surgeon
- The ward nurse
- The scrub nurse
- The ODP / anaesthetist

A patient should not leave a ward without the documentation having been completed, and an

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operation should not be commenced unless signed off by the operating theatre staff.

The aim of our audit was to see how often the introduced CSS documentation was completed, and if so, completed accurately. The initial audit was carried out shortly after implementation of the documentation in 2006. As a result of the initial audit, the documentation was adapted to make it clearer and easier to complete. To raise the awareness of the problem of incorrect-site surgery, the guidance and documentation were publicised to individual surgical teams. The audit cycle was completed by re-auditing CSS documentation usage in 2008.

There were a number of criteria that had to be fulfilled before the documentation was accepted as being correctly completed:

1. The marked operation site / side position was documented
2. If applicable, 'no mark required' was documented (e.g., for bilateral insertion of grommets)
3. The information was legible
4. The marking surgeon had signed
5. The operating surgeon had signed
6. The ward nurse had signed
7. The scrub nurse had signed
8. The operating department practitioner had signed

The documentation should have been correctly filed in the patient's records along with all other surgical records. The documentation was considered to be legible if 3 separate health professionals had independently interpreted the information in the same way.

In 2006, 95 sets of notes, taken from 4 of the 5 main surgical specialties at the hospital, were analysed. 25 sets of notes were examined from ENT (Ear, Nose and Throat), Plastic Surgery and Orthopaedics, along with 20 from General Surgery (including Upper GI, Lower GI and Urology). The audit was then repeated in 2008. On this occasion 96 sets of notes were examined: 25 sets each from ENT, Plastic Surgery and Orthopaedics, with 21 from General Surgery. The standard for completion of the documentation was 100%. This included both filling in all of the required data and having been signed by all necessary health professionals.

3. Results

None of the forms were wholly and correctly completed in 2006 or 2008. The results are summarized in Table 1.

Table 1. Overall comparison between 'correct site' audits conducted on surgical patients at Sheffield Children's Hospital.

Criterion:	2006 audit (n= 95) (%)	2008 audit (n= 96) (%)
Mark site documented	33	91
No mark required documented	11	59
Entries legible	33	98
Ward nurse signed	68	60
Marking surgeon signed	19	36
Operating surgeon signed	10	7
Scrub nurse signed	17	0
Operating department practitioner signed	37	34

3.1. 2006 audit

In total, 56.5% of forms had some documentation of the patient having been marked. The ENT's and plastic surgeons were the least consistent at completing this section of the form, only documenting 20% of forms, closely followed by the general surgeons, who documented 21%. The orthopaedic surgeons were the most reliable at documenting a mark / no mark required - they filled in 32% of this section of the form.

3.2. 2008 audit

Overall, there was a distinct improvement in the rate of marked-site documentation, though this was still below the expected standard. The orthopaedic surgeons were once again the most consistent at whether or not a mark was required, and if so, which body part they had marked. This time, the orthopaedic surgeons competed 100% of the forms, and were the only department to meet NPSA criteria. Legibility of the documentation also improved significantly.

4. Discussion

In the UK, 3% to 17% of patients admitted to hospital are harmed in some way [2], and 27.6% of these incidents result from inattention of health care professionals [4]. These adverse events cost taxpayers approximately £2 billion a year for the additional hospital stays alone [5], and does not include compensation for those who were harmed. In the NHS in 2003-4, there were 27 litigation claims in for 'incorrect-site surgery', 35 the year after, and in 2005-6, there were 40. Despite the issue of incorrect-site surgery being given more attention by the NHS and government bodies, it appears that incorrect-site surgery is becoming increasingly common. The cost of settling the claims mentioned above was £447,694 in 2003-4; £663,145 the following year; and £1,098,975 in

2005-6 [6]. It is extremely important, therefore, not only from an ethical perspective, but also from an economic perspective, that all possible measures are taken to ensure that the incidence of incorrect-site surgery is minimised.

Correct-site surgery is still the ultimate responsibility of the surgeon. As mistakes have been made in the past, it seems logical that having further checks in the process will reduce incorrect-site surgery, but not everyone is in agreement [10]. Given the importance of this issue, it would be expected that the correct site is marked in all cases. Whether the documentation reflects *all* marking activity is not clear; various reasons are put forth as explanation. Some sources cited a lack of privacy in "admission lounges/day rooms" [2]: as patients are not always admitted the night before surgery, they may not be assigned a bed until after the surgeon has had to start the list. The distance between the ward and the theatre may make surgeons less willing to return to the ward and mark patients between cases [2]. There is also the drawback that, for reasons of infection control, doctors are no longer permitted to carry pens to mark patients [11], and there are not always pens easily available on the wards. Time constraints often make spending time looking for pens impossible.

Although patients should ideally not be marked and consented by anyone other than the surgeon him/herself, this responsibility often falls upon the junior doctor. This doctor may not have seen the patient in the clinic and therefore has to rely on the theatre list, the patient's notes, and indeed the patients themselves, to ascertain the correct site. A typing or clerical error may result in the wrong area being marked and consequently operated upon [2]. In one of the present authors' experiences, this occurred in a department in an adult hospital, where the only people to see the patients preoperatively were the junior medical staff. The notes and the theatre list stated a different side from the consent form. In this case, the patient himself had consented to have the wrong hip replaced.

Other reasons have been cited, for example: fatigue of the surgeon causing inattention to detail (especially if they have been on call the previous night) could be a factor. However, the introduction of the EWTD 48-hour working week should help to minimise this risk. Conversely, this shift pattern will mean the involvement of multiple surgeons, especially during hand-over times, which could lead to confusion [12]. There are also challenges related to the hierarchical culture of the theatre: juniors may be afraid to question their superiors if they feel the surgeon is in the wrong [12]. Factors such as the incorrect labelling of radiological investigations may lead to incorrect-site surgery, as do patients with similar names undergoing similar operations. Poor preoperative planning [13], miscommunication between colleagues and the patient [13], recklessness [13] and illegible handwriting [13] have also been cited. This last point was highlighted in the present study, as many of the correct site forms were unreadable.

Although the number of surgeons completing the documentation increased between 2006 and 2008, there was still a worrying lack of countersignature of the documentation to confirm the correct site. The lack of documentation, of course, may not reflect that the new guidance and processes are not being followed, but rather that the documentation is regarded as a low priority part of the process. These are legal documents, and as such, should be given the requisite priority. There are parallels between introduction of CSS guidance and new consent guidance: audits of the introduction of new consent forms have shown gradual and sustained improvement as the process becomes fully embedded and the surgical culture changes. In addition, the introduced guidance may not always be very practical. Although responsibility is given to the scrub nurse to sign the form, in reality, by the time the patient arrives in the theatre, the scrub nurse is usually scrubbed and therefore unable to sign.

The issue of legibility is a difficult and longstanding one. Doctors notoriously have poor handwriting [14], which unfortunately has become somewhat of a joke in recent times [15]. The documentation has been designed to be completed quickly using tick boxes, but required the site of mark and signature to be written. Even this minimal amount of writing was often found to be illegible.

The introduction of the NPSA safety checklist includes a 'time out' before each operation where all staff stop what they are doing and check that they have the right patient, that the consent form has been signed by the patient and a surgeon, and that the patient has been marked if necessary. It is anticipated that this 'time out' will minimise confusion about which procedure will occur at a given time. A pilot study in 8 different hospitals around the world showed a 40% decrease in the number of deaths reported following the introduction of the WHO's safe surgery checklist [9]. This will change the way that evidence of correct-site surgery practice is recorded, but only time will tell if the introduction of this checklist will have any bearing on improving completion of documentation and the incidence of incorrect-site surgery.

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