



Quality Improvement Study

Use of abbreviations in consent forms for orthopaedic surgery: A pilot study

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Background: Consent is a process of communication and the consent form is an important legal document of the evidence of discussion between doctor and patients. We observed frequent use of abbreviations in the consent forms in our department that can result in misunderstanding and miscommunication when consenting patients for orthopaedic procedures.

Methods: We completed an audit cycle starting by reviewing a total of 350 consent forms retrospectively in level one trauma centres in October–November of 2019 for different orthopaedic trauma procedures. The standards for the project were guidelines published by the general medical council (GMC), The royal college of surgeons (RCS) Glasgow, and the British orthopaedic association (BOA). The results were presented at our mortality and morbidity meeting. Written Feedback was obtained from the attending members on how a change can be implemented to increase compliance in filling consent forms. A generic email was sent to all medical professionals to avoid the use of abbreviations on the document and encourage colleagues to point out errors if they spot them. The use of full medical terms and to avoid abbreviations in consent form was well advertised, The re-audit was performed for the period of January & February 2020 that included 400 consent forms. The results were analysed and compared with our original audit results.

Results: The use of abbreviations declined from 54% in first audit to 22% in the re-audit. DVT and PE were the most common abbreviations.

Conclusion: This audit cycle has shown the importance of education and reminders to the health professionals in achieving better adherence to the guidelines and improves patient care.

1. Background

Medical professionals have a legal responsibility to obtain informed consent before any surgical procedure. Consent is as important as any basic principle on which surgical practice is carried out [1]. Guidelines have been developed by several professional bodies, including the General Medical Council (GMC), British Medical Association (BMA) and Department of Health (DOH) [2–4]. There are multiple reasons why consent is important, such as letting the patient know the benefits and risks of surgery, and communicating essential and sufficient information

between the patient or next of kin and the surgeon [4]. The process of consent is indeed a complex one. The consenting doctor must be aware of the patient's medical history and medical problems. They must also be aware of why the patient has consented for the procedure. Permission must be obtained from the patient by discussing the available options for treatment and explaining procedures in detail, including the involved risks and benefits of the procedure. Adequate time must be given to the patient for their understanding of the procedure and for them to ask any questions. It is essential for the consenting doctor to check the patient's knowledge and understanding of the procedure to assess the type of

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consent required. Family members can be involved in this process if the patient lacks this capacity. This will ensure that all due diligence has been carried out and that all pre-requisites are fulfilled [5]. The use of abbreviations, acronyms and symbols is misleading and has been the central focus of our study. These terms tend to send a different meaning in a different context and can reduce the effectiveness of communication [6,7]. There are many examples of medicolegal cases where inadequate and incomplete documentation has led to severe repercussions [8].

Current GMC guidance to consent encourages that if junior trainees are to gain informed, valid consent then they must have sufficient knowledge of the procedure to explain it to someone who doesn't know about it [2].

In our trust, the main responsibility for filling out consent forms belongs to the senior house officer (core surgical year 1–2 or equivalent) or the orthopaedic registrar on call. As per protocol, this is then rechecked by the morning orthopaedic registrar who will assist the consultant in the theatre the case is to be performed in. The final phase of the consent check takes place in the theatre whereby it is checked by the surgical team during the World Health Organisation (WHO) Checklist Declaration. The authors noted that, during all these checks, the main focus was on the surgery, name of the procedure, whether the patient had signed the consent form or not, and on what abbreviations had been used, if any.

The purpose of our study was to monitor how well the consent forms were being filled out for patients being consented for acute trauma and orthopedic procedures. These were then compared to existing approved consent guidelines as per our standards. The results were presented in the consultants' meeting and feedback was obtained for the change process. Recommendations were implemented and time was given for changes to be noticed and for them to take effect. Improved results were then recorded and presented again, thereby completing the cycle.

2. Methods

This is a retrospective study looking at patient consent forms and reviewing the type/number of abbreviations used in them and has followed SQUIRE 2.0 criteria [12]. The working hypothesis was that no abbreviations were to be used in the consent forms – only the full form of words were considered acceptable. After approval from our clinical governance department, we reviewed the case notes and consent forms for all patients operated on for acute trauma and orthopedic issues from 1 October 2019 to 31 November 2019. A total of 350 consent forms were reviewed and the results were tabulated. The consent forms were reviewed by senior house officers and registrars after looking at the following variables:

- i. The type of consent form used
- ii. The grade of the doctor who filled out the consent form
- iii. The number of errors found
- iv. What abbreviations were used
- v. Who used the abbreviations

The data was collected and entered into excel sheets. The results of the first cycle were presented during a morbidity and mortality meeting in the presence of consultants, registrars and members of the clinical governance team. They were presented in a PowerPoint presentation and feedback was taken from the attendees after the presentation. Ideas on how to make a change were noted and the minutes of the meeting were submitted to the clinical governance team.

After advice and feedback was collected from colleagues and the clinical governance team, we advertised the changes in the following ways:

- A. A generic email from our ward managers was sent to all the doctors and staff working on the ward, explaining the findings of our project

and the standards used. We stressed upon the importance of using full words in consent forms instead of abbreviations.

- B. A sticker was attached to all consent forms as a reminder to all staff who used them (shown in Fig. 1).
- C. An attention-grabbing poster (taking inspiration from internet memes) was hung up in all areas where doctors fill out consent forms i.e. seminar rooms, staff rooms and outside nursing receptions.

A month was given for these changes to come into effect. A re-look QI project was then registered with the clinical governance team. Data was then collected for all orthopedic trauma patients operated on from 15 January 2020 to 29 February 2020. Variables for this re-look were kept the same, however exclusion criteria for all consent forms filled out by doctors involved in the research were applied. As many as 400 consent forms were looked at and the results tabulated.

3. Results

In the initial cycle, we reviewed a total of 350 consent forms, out of which the majority (84%) were consent forms 1 i.e. a consent form whereby a patient with capacity consents to care and/or treatment.

56 forms were consent forms 4 i.e. a consent form whereby a 'best interest decision' regarding care or treatment is taken for a patient who lacks the capacity to make decisions themselves.

Out of the 350 forms reviewed, abbreviations were found in 54% of the forms filled (Fig. 2a). The forms containing abbreviations had been filled out mostly by specialty registrars (74%) and consultants - very few forms had been completed by core trainees (Fig. 3). The most oft used abbreviations were DVTs (deep venous thrombosis) and PE (pulmonary embolism). Details for all abbreviations used are shown in Fig. 4a.

In the re-audit phase of the cycle – after the exclusion of all consent forms filled out by surgeons involved in the audit - there were 400 consent forms. The re-audit showed that more than 78% of the forms contained no abbreviations (Fig. 2b).

The analysis of forms containing errors (with abbreviations) showed that in 72% of the cases, registrars had been using abbreviations in the consent forms (3b). Although the total number of abbreviations used had declined from 54% to only 22%, there were no changes noted in which abbreviations were being used. DVT and PE were the most common errors (4b) in both audit cycles.

We noted that, although the total number of abbreviations used in the consent forms had decreased significantly, forms with abbreviations in them continued to use short forms for words such as chronic regional pain syndrome (CRPS), pulmonary embolism (PE), deep venous thrombosis (DVT), proximal interphalangeal joint (PIP) and examination under an anaesthesia (EUA). The use of abbreviations such as CRPS, PIP and EUA has increased in percentage in the abbreviated consent forms.

A detailed measure of all the outcomes of each variable for the audit and re-audit is given in Table 1. Fig. 5 summarizes the main stages of our study.

4. Discussion

This study demonstrates the need for training and awareness in consenting orthopedic patients amongst medical staff. It was identified that consent forms had not been filled properly when compared to our guidelines, which were kept as the standard. However, we detected the drawbacks in our practice, discussed the results and implemented changes to improve practice thereby achieving the targets for our project. The results were significantly improved in all aspects of consenting trauma patients during the re-audit of the study. This is an excellent example of how an audit period assisted our unit in raising the quality of care to the level required by today's NHS.

This audit has shown that by reviewing our practises on a regular basis and disseminating the findings, we can improve our service in a

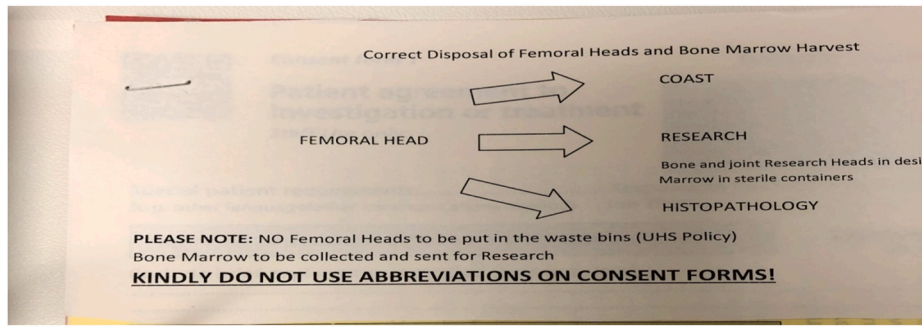


Fig. 1. Stickers used in consent forms.

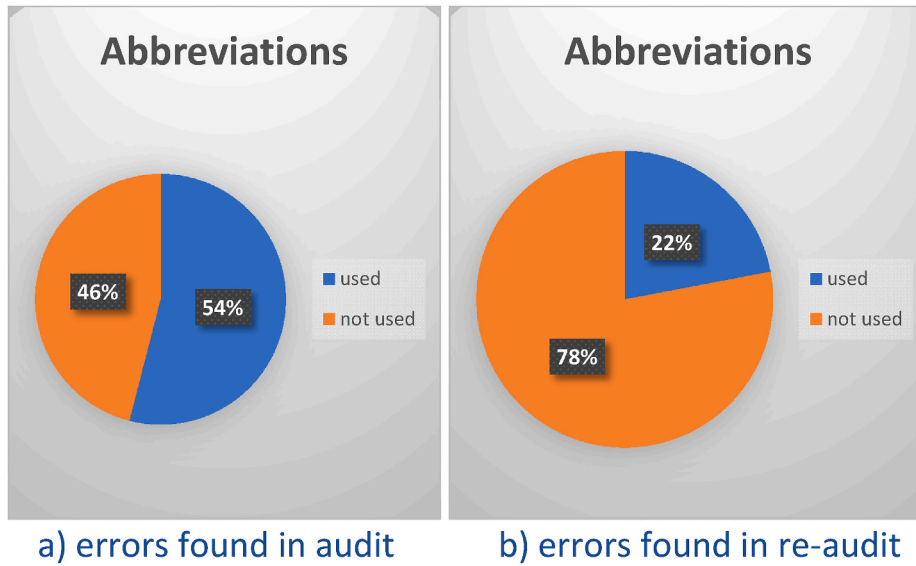


Fig. 2. a) Errors found in audit. Fig. 2b) errors found in re-audit.

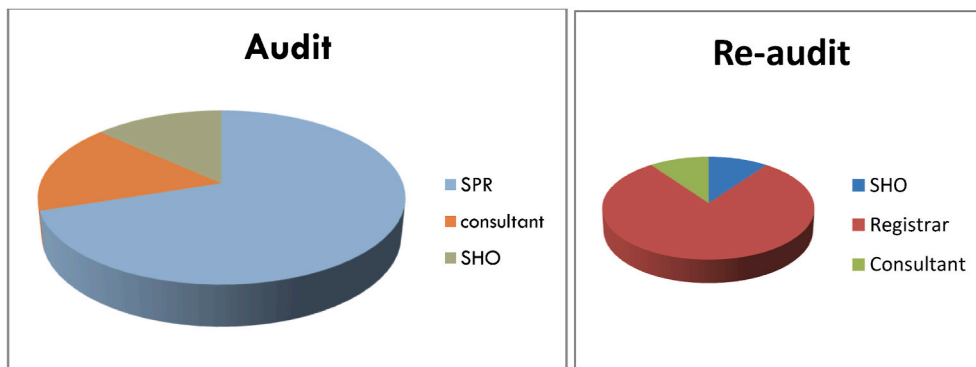


Fig. 3. Grade of surgeon who made the error in audit and re-audit.

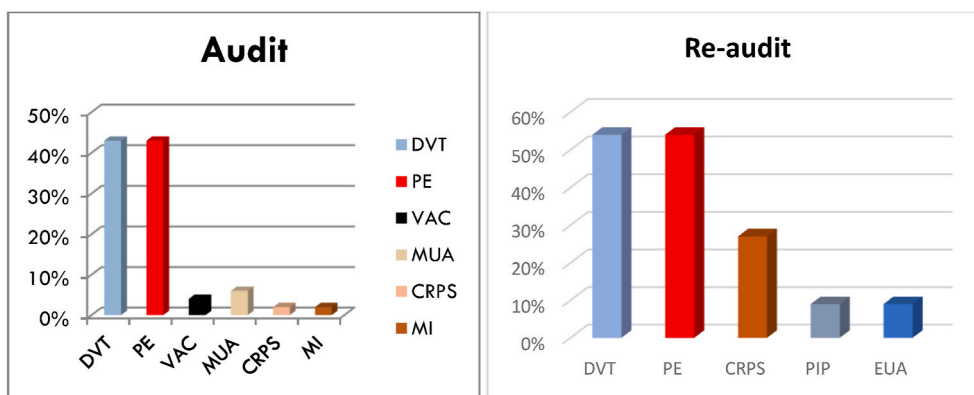
short amount of time without using a lot of resources or increasing costs. This audit has demonstrated that, by regular review of our practice and dissemination of results, service improvement can be achieved in a short time without involving extensive resources and increasing cost.

Abbreviations were more commonly observed during the initial audit cycle. This included common risks that were frequently abbreviated rather than being spelt out properly. This was in contrast to the introduction of the National Patient Safety Goal to improve communication and restrict the use of abbreviations [9]. In consent types, abbreviations are often used to save time and space when writing in

patients' medical records [9].

The main function of consent is for the patients to have the proposed procedure explained to them in such a way that they are able to decide upon proceeding with the planned treatment without the use of medical jargon or abbreviations not known to the common man [10].

The study's shortcomings are inherent in its design. It is the survey of a small number of patients with a narrow spectrum of service assessment and change. Furthermore, similar discrepancies might exist in other areas of the trauma and orthopaedic department that were not evaluated in our present study, such as if the patient had questions, whether the



a) abbreviations used in audit. B) abbreviations used in re-audit

Fig. 4. a) Abbreviations used in audit. B) abbreviations used in re-audit.

Table 1

Table showing variables used and data collected in audit and re-audit cycle.

Data collected	Audit	Re-audit
Data collected	Audit	Re-audit
Total forms reviewed	350	400
Consent form used	Form 1=294 (84%) Form 4=56 (16%)	Form 1= 360 (90%) Form 4= 40 (10%)
Forms with abbreviations	189 (54%)	88 (22%)
Grade of doctor who used abbreviations	Consultant= 45 (24%) Registrars= 139 (74%) core trainees = 3(5%)	Consultant= 11(12.5%) Registrars= 64(72%) core trainees = 11(12.5%)
Abbreviation used	Audit	Re-audit
DVT	85 (45%)	48(54%)
PE	85(45%)	48(54%)
VAC	19 (10%)	0(0%)
MUA	19(10%)	0(0%)
CRPS	10(6%)	24 (27%)
MI	2(4%)	0(0%)
PIP	0 (0%)	8(9%)
EUA	0(0%)	8(9%).
Total forms reviewed	350	400
Consent form used	Form 1 = 294 (84%) Form 4 = 56 (16%)	Form 1 = 360 (90%) Form 4 = 40 (10%)
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PIP	0 (0%)	8(9%)
EUA	0(0%)	8(9%).

patient didn't want any part of the procedure to be done or whether the patient was given other treatment options.

One other limitation of our study was the fact that, even after the re-audit cycle and the changes we made, we still had a 22% failure rate.

This suggests that any interventions we made still did not target all of the medical staff it was intended for. The email sent to all users may not have been read by all and may have been ignored by some as being a generic work mail, and not given particular attention. The poster we

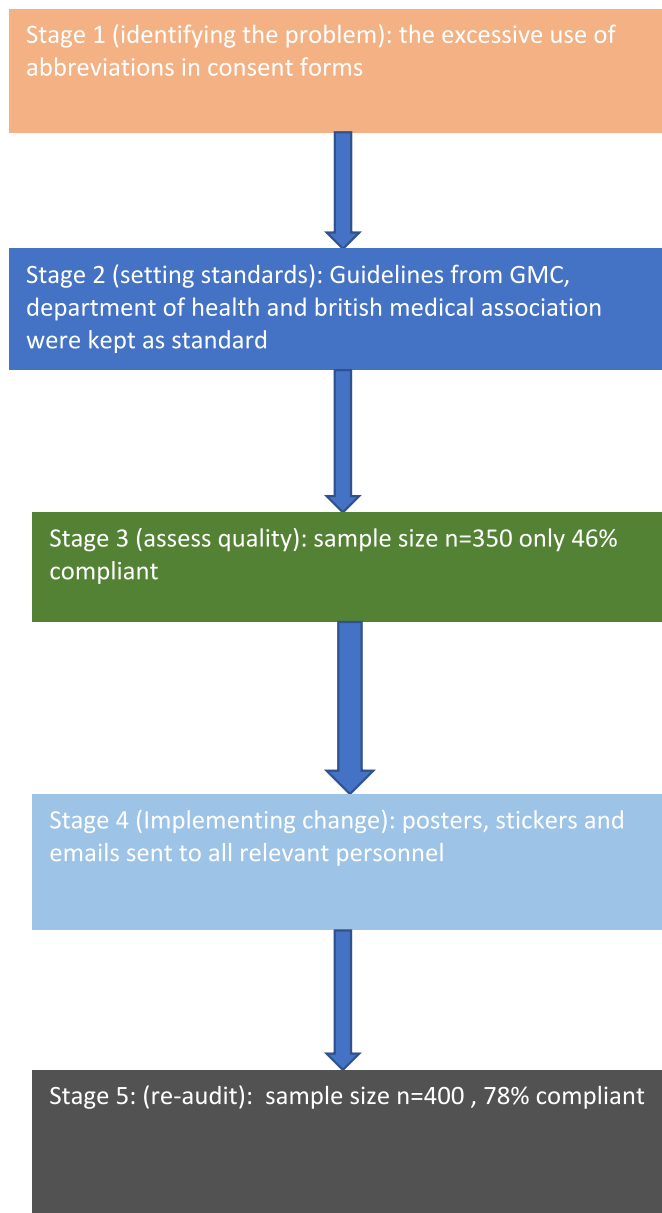


Fig. 5. Flowchart summarizing findings of study.

made didn't mention much about our audit and findings, making readers unaware of the necessity of using full words rather than abbreviated letters. A more detailed poster and flagging the email as an urgent read to all those involved could have brought the failure rate further down.

However, the main purpose of this paper is to emphasise the need for regular service evaluation and effective communication of the data to improve patient care.

5. Conclusion

We suggested creating unique training sessions for junior doctors on consenting for common trauma procedures during a specific induction session. Our findings in audit meetings and suggestions and changes made helped improving results.

When juniors are delegated to take consent, the operating surgeon should review the quality of the data recorded and conduct a review with the patient prior to surgery and on the spot teaching can be given.

We suggest the use of available online orthopaedic procedure

guidelines on www.Orthoconsent.com which has been endorsed and updated by the British Orthopaedic Association [11].

Ethical approval

Retrospective study none needed, booked as audit with clinical governance. Registered in research registry with UIN 7245.

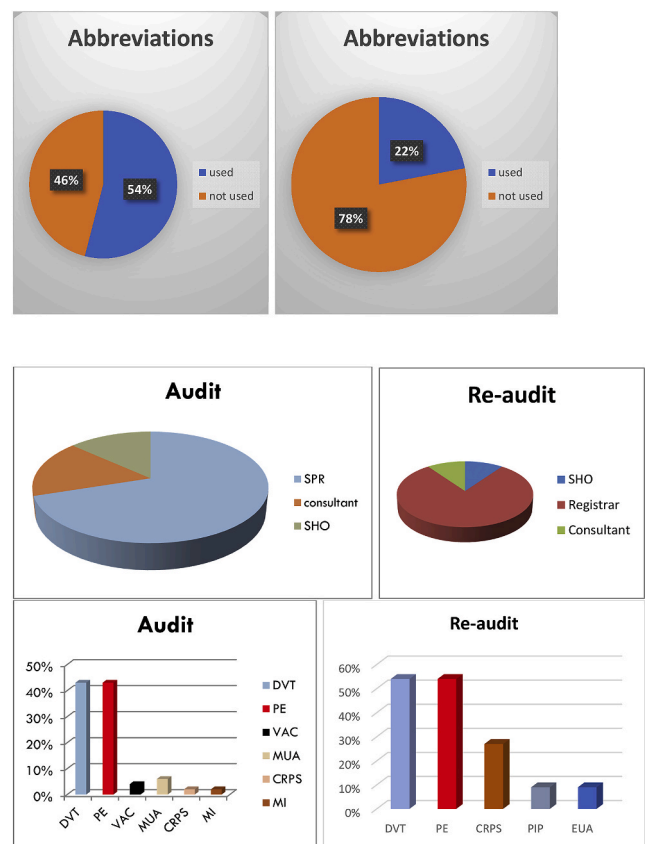
Funding

No funding was needed for this study.

Authors contribution

MNHK carried out the initial idea and helped in the collection of data and providing the concept for stickers and posters. WI was responsible for data collection in the audit and re-audit phase. HS collected data in the re-audit phase and presented the findings in the meeting. HJ was responsible for educating the staff and helped in collection during the re-audit phase. NA was the supervising consultant for the whole project. AIQ reviewed the original file and corrected the whole article as well as addressing the consultant concerns. BGK was responsible for proof reading and correcting the grammar.

Data and materials



Consent for publication

Not applicable.

Provenance and peer review

Not commissioned, externally peer reviewed.

Registration of research studies

Name of the registry: ResearchRegistry
 Unique Identifying number or registration ID: researchregistry7245
 Hyperlink to your specific registration (must be publicly accessible and will be checked):
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Consent

All data anonymised.

Guarantor

Mohammad Noah H Khan corresponding author.

Declaration of competing interest

There were no conflicts of interest for the study.

Abbreviations used

DVT	Deep venous thrombosis
PE	Pulmonary embolism
VAC	Vacuum assisted closure
MUA	Manipulation under anesthesia
CRPS	Chronic regional pain syndrome
MI	Myocardial infarction
PIP	Proximal interphalangeal
EUA	Exploration under anesthesia

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102949>.

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