

The Big Freeze - Saving Money and improving patient safety

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Abstract

Aims

Patients undergoing elective operations at a local district general hospital were requiring repeat group and save blood samples on the morning of theatre as the samples taken at pre-operative clinic were invalid. The aims of this audit were to identify how many patients were requiring a repeat group and save blood sample prior to theatre, identify approximately how much this is costing the trust and to implement a change in practice to improve patient safety and reduce expenditure.

Methods

100 patients undergoing elective operations were audited over a two week period. The audit assessed whether patients were grouped and saved pre-op, whether these samples were valid and whether or not patients required a repeat sample. Patients that did not require a group and save pre operatively were then excluded from the analysis. Of the patients that required a group and save, these were then further divided into those that were valid and those that were invalid. Of the samples that were invalid, patients were then assessed as to whether or not they had a repeat sample.

Results

Over a two week period, 100 patients were audited. Of these, 61 patients required a group and save pre-operatively, 35 of which had a valid group and save (57%) and 26 had an invalid sample (43%). Of those samples that were invalid, 21 required a repeat sample (80.7%). The audit showed that the hospital failed to achieve the standard of 100% patients having a valid group and save prior to theatre. Of those patients audited, 21 patients out of 61 (34.4%), required a repeat group and save. A subsequent re-audit took place in May 2011. The same methodology was used as set out above. Of these 100 patients, 69 required a group and save pre-operatively, 69 samples were frozen at pre-op, however two of these required a repeat sample as they were incorrectly labelled, but these samples would have been valid if they had been correctly labelled. Therefore the changes to clinical practice resulted in a significant decrease in the number of repeat samples required down from 43% to 2%.

Conclusions

Freezing pre-operative group and save samples significantly reduced the number of repeat samples that were required resulting in improved patient care and safety. Furthermore as each group and save sample costs £9.20, this simple change in practice lead to an approximate saving at a local hospital of £6000 per annum. As a result if this process was standardised and adopted nationally throughout the 165 acute trusts within the NHS this could lead to significant savings together with improving patient care and safety.

Introduction

A group and save involves determining the patient's ABO blood group and screening serum for the presence of antibodies to common red cell antigens that can cause transfusion reactions. A group and save should be ordered if the patient is unlikely to need a blood transfusion but it will reduce the time required for crossmatched blood, should the patient subsequently need it. As there are more than 12 blood group systems it takes about 40 minutes to determine an individual's blood group (group and save) and 40 minutes to crossmatch (issue) blood. This may take longer for people with rarer blood groups and in people who have received many transfusions or who have developed antibodies. In emergencies, ABO-specific blood (12 minutes to issue) or group O blood (which has neither A nor B antigens) may be necessary. Group and save samples are often a routine part of the pre-operative assessment for a significant number of patients undergoing elective operations in order to reduce the time needed to obtain a sample from the transfusion laboratory should it be required. At our local district general hospital, group and save blood samples are held in the transfusion laboratory for 7 days. Any samples exceeding 7 days require a repeat group and save sample to be sent because the sample is no longer valid to cross match blood as it will have haemolysed. Each group and save costs approximately £9.20. Therefore any need for a repeat sample significantly compromises patient care and is a considerable waste of NHS funds. Consequently any improvement in this system could result in improved patient safety together with significant cost savings for the trust. Therefore this audit cycle sought to establish the extent of the problem within a local district general hospital and establish whether there were any improvements that could be made to the current system [1].

Audit Standards

No stated guidelines, therefore standard was set at 100% patients that required a group and save had a valid sample prior to theatre [2].

Methods

The audit looked prospectively at all elective general surgical, gynaecological, vascular surgical and orthopaedic operations over a two week period. It assessed whether patients were grouped and saved pre-operatively, whether these samples were valid and whether or not patients required a repeat sample. Patients that did not require a group and save pre-operatively were then excluded from the analysis. Of the patients that required a group and save, these were further divided into those that were valid and those that were invalid. Of the samples that were invalid, patients were then assessed as to whether or not they had a repeat sample [3,4].

Results

Over a two week period, 100 patients were audited prior to theatre. Of these 100 patients, 61 patients required a group and save at pre-operative clinic, 35 (57%) had a valid group and save blood sample (sample had been taken within 7 days prior to procedure), 26 (43%) had an invalid sample (sample had been in transfusion laboratory for longer than seven days). Of those samples that were invalid, 21 required a repeat sample (80.7%). The other five did not require a repeat sample as it was deemed a repeat sample was not necessary for the operation. The audit showed that the hospital failed to achieve the standard of 100% patients having a valid group and save prior to theatre. Therefore of those patients audited, 21 patients out of 61 (34.4%), required a repeat group and save. As each group and save costs £9.20 this equates to a loss of approximately £211 over two weeks. If this data is extrapolated over a year, the loss to the hospital is approximately £5486 pounds per annum. Therefore a change in the way group and saves are ordered prior to theatre could result in savings in the region of £6000 pounds per annum.

Recommendations

After the initial audit the following change were put into practice:

If blood samples are frozen once they are taken, then they are valid for 28 days rather than the standard 7 days. Following discussion with blood bank a freezer was purchased at the cost of approximately £200. Through re-education of doctors, nurses and staff working in pre-operative clinic and blood bank, all group and save blood samples sent from pre-operative assessment clinic were frozen on arrival at the laboratory and then unfrozen on the morning of theatre allowing the samples to be valid for 28 days.

Introduction of specific guidelines to ensure that of the patients that require a group and save prior to theatre that this is achieved in 100% cases

Re-audit

A subsequent re-audit took place. The same methodology was used as set out above, thus 100 patients undergoing elective operations were re-audited over a two week period. Of these 100 patients, 69 required a group and save pre-operatively, 67 samples were frozen at pre-op and the two that were not frozen had to be repeated as they were incorrectly labelled. Therefore only two patients required a repeat sample, but these samples would have been valid if they had not been incorrectly labelled. Therefore the changes to clinical practice resulted in 98% patients undergoing elective operations having a valid group and save blood sample prior to theatre. Consequently this change in practice resulted in significantly improved patient care and safety. Furthermore as each group and save sample costs £9.20, the overall saving to the hospital was in the region of approximately £6000 per annum.

Discussion

In the current climate it is particularly important that savings no matter how small are made in the NHS without compromising patient safety. The majority of patients undergoing vascular, orthopaedic and general surgical elective operations that are at high risk of blood loss are being grouped and saved at pre-operative assessment clinic, which is good clinical practice. However, when arriving for theatre a proportion were requiring repeat group and saves as their previous ones were invalid because samples held in the transfusion laboratory were only valid for seven days, this situation is a common occurrence and replicated in many other NHS trusts. Following a simple change in practice, which ensured all samples sent from pre-operative assessment were frozen on arrival to the transfusion laboratory allowed the blood samples to be valid for 28 days. The subsequent re-audit showed that this resulted in a significant decrease in the number of repeat samples requested therefore improving patient care and safety. Furthermore, as each group and save blood sample costs £9.20, the overall saving to the hospital per annum was in the region of £6000. In total there are 165 acute NHS trusts in England (NHS Choices). If this change in practice was standardised and nationalised across all NHS trusts, there is a potential for significant savings annually together with significantly improved patient care.

Conclusions

The audit revealed that by ensuring that group and save blood samples are frozen on arrival at pre-operative clinic that this significantly reduced the number of repeat samples that needed to be sent. Consequently this resulted in improved patient care and safety.

As each group and save sample costs £9.20, this simple change in practice resulted in an approximate saving at a local hospital of £6000 per annum. As a result if this process was standardised and adopted nationally throughout the 165 acute trusts within the NHS this could lead to significant savings together with improved patient care and safety.

References

1. Burdett E., Stephens R. (2006) Blood transfusion: A practical guide. *British Journal of Hospital Medicine* .67, (4):67-69
2. Hebert PC (1998) Transfusion requirements in critical care (TRICC): a multicentre, randomized, controlled clinical study. *Transfusion*
3. Requirements in Critical Care Investigators and the Canadian Critical care Trials Group. *Br J Anaesth* 81(25)-33
4. Murphy MF, Wallington TB, Kelsey Pet al (2001) Guidelines for the clinical use of red cell transfusions. *Br J Haematol* 113: 24-31