14. NEAR MISS EVENTS

Definition
Any error, which if undetected, could result in the determination of a wrong blood group, or issue of an incorrect or inappropriate component, but which was recognised before transfusion occurred.

'Near Miss' events are recognised as a good indicator of strengths and weaknesses within a process. They often have the same root causes as actual transfusion accidents but their higher frequency allows systems to be analysed and corrected before accidents occur. The reporting of such events has created significant interest and enthusiasm to introduce a permanent reporting system for this area. A small pilot scheme was undertaken and reported in the 1997-1998 Annual Report. However to obtain more meaningful data and validate the trial findings a larger survey was required, so during the course of that reporting year hospitals returning a "nil to report" card were asked if they wished to express interest in taking part in a larger study. So many hospitals expressed interest that it was not possible to invite them all to contribute because of the greater frequency of "near miss" events and resource limitations in the SHOT office. Approximately 25 hospitals were chosen to take part in data collection, the choice being rather loosely based on size and type of hospital and geographical location to reflect a wide range of hospitals. Data collection commenced on 1st March 1999 and officially ran for 7 months. 22 hospitals eventually contributed and a further 26 reports that were received from a few hospitals, not invited to participate, were included in the analysis.

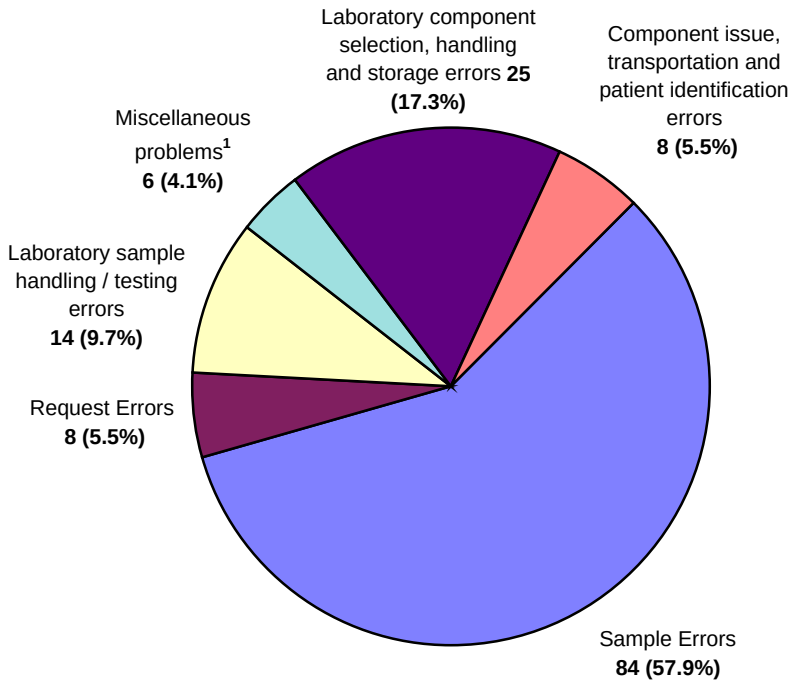
The potential for an error to have a serious consequence depends upon many factors, including the effectiveness of any subsequent checks built into the process. The first three years of SHOT reporting have shown that in many instances several errors may contribute to a "wrong blood" incident. Consequently what may be deemed to be minor errors may escape later recognition and play a significant role in a serious outcome.

To ensure a standard format and a simple method of recording problems, forms, mostly utilising tick boxes, were issued to all collaborating laboratories, with no follow-up questionnaires involved. This limited the amount of effort involved in completion of the information, but inevitably some details of the problems were missed. The 5 activity areas covered on the 'near miss' report forms are:

1. Sample errors
2. Request errors
3. Laboratory sample handling/testing errors
4. Laboratory component selection, handling and storage errors
5. Component issue, transportation and patient identification errors

Some incidents were also submitted which could not be classified into the defined 'near miss' categories and these are included as miscellaneous reports.

Figure 15
Categories of 'near miss' errors reported (N=145)



[1] Reports that did not meet the defined SHOT 'near miss' criteria

A total of 145 errors were reported between 1 March and 30 September 1999 and 139 have been evaluated (figure 15). Of these 6 were reports submitted where protocols within the individual hospitals were not followed, but where the errors involved did not fit the defined SHOT 'near miss' criteria, although they were of concern to the reporting hospital. These reports included an instance of blood being transfused without the laboratory report form and bedside checking could not, therefore, have been performed correctly.

Also among the 26 reports received from hospitals not invited to participate were 2 cases of inappropriate transfusion of blood components, which it would have been more appropriate to classify as IBCT incidents. These were a laboratory technical error giving a false negative antibody screen resulting in the transfusion of c positive red cells to a patient with anti-c, and the switching of patient compatibility labels between 2 patients, one of whom received the component, whilst the error with the other unit was detected during the bedside checking procedure.

Sample errors (84)

Poor phlebotomy procedures were the major problem in all reported 'near miss' events. Among the 84 reported incidents

- 24 samples were identified as being taken from the wrong patient.
- 44 were taken from the intended patient but labelled for another patient.
- At least one incident occurred when 2 patients' samples were switched.
- Other problems involved different patient identification details on samples and request form, and there were 9 cases where samples were received unlabelled. Although these samples would not have been used for testing, they are further examples of poor phlebotomy practices.
- The majority of samples was collected on the wards by medical staff (44), but nurses (16) and phlebotomists (5) were also involved.

- 50 errors were stated to have occurred during routine hours and 17 during on call or out of hours periods.
- At least 46 of the errors were detected within the laboratory by comparison with the historical patient record
- 6 of the problems were realised retrospectively by the person who performed the venepuncture
- Only 1 case was reported as involving the use of addressograph labels on the sample, but at least 5 of the problems were caused by the use of an incorrect label on the request form.

Request errors (8)

- 8 reports involved the lack of notification to the laboratory of the need to irradiate components for patients receiving the chemotherapy drug fludarabine, a purine analogue.

Laboratory sample handling and testing errors (14)

- In 5/14 cases an incorrect patient sample was used
- 5/14 reports involved clerical error leading to 4 incorrect blood group transcriptions.
- 3/14 reports were of technical errors and resulted in an incorrect RhD type, an incorrect ABO group and the wrong interpretation of a positive antibody screen.
- 10 errors occurred out of hours and 4 errors occurred during routine working hours.

Laboratory component selection, handling and storage (25)

- 9/25 errors were avoidable failures to select the correct component, the majority being a failure to provide CMV antibody negative components, the need for which was defined within the laboratory records.
- 6/25 were errors of incorrect labelling of components.
- 1 dose error in issuing platelets occurred. A request was received for 4 (single donor) bags of platelets but 4 adult therapeutic doses were issued.
- 7 errors of incorrect storage of components were reported, although all errors occurred within areas outside the direct control of the laboratory. These comprised:

  3 incidents of red cells found in ward domestic refrigerators
  1 unit of FFP stored for 12 hours in a ward domestic refrigerator
  1 unit of red cells put into a theatre domestic refrigerator
  1 platelet bag stored within theatre in a freezer
  1 unit of red cells placed in a bone bank freezer at -40°C

- 6/7 of the storage errors occurred outside normal laboratory hours, although only 10 of the 25 reports in this category were in this same time period.

Component issue, transportation and patient identification errors (8)

- 3 incidents were reported of the wrong patient's blood being taken to the ward or theatre.
- A unit of red cells was sent by ward staff to another hospital in a carrier bag.
- There were 2 reports of red cells being frozen during transportation:

  4 units of red cells were transported from a Blood Centre to a hospital laboratory in an insulated box with dry ice pellets. The red cells were received frozen.

  On the other occasion, red cells for a patient being transferred between hospitals, were sent in an insulated box containing ice inserts. The receiving nursing staff were concerned that the units appeared partly frozen and reported the problem to the laboratory. Upon centrifugation of the units that they were found to be grossly haemolysed.

COMMENTARY

- Incorrectly followed phlebotomy protocols were identified as the single major problem area in 'near miss' reports. Sample errors comprised 57.9% of all reports compared to 48% detected in the small pilot survey of 'near miss' events summarised in the 1997-1998 Annual Report.
  Incorrect samples taken from patients with the same blood group or samples from patients not previously tested are unlikely to be recognised, so approximately 50% of sample errors will remain undetected. In 2 unpublished studies in the UK, the frequency of incorrect phlebotomy has been estimated at approximately 1 per 3500 samples collected. The frequency of phlebotomy problems within individual hospitals in this project could not be ascertained because of the anonymous reporting mechanism, but evaluation of reports, using the workload data quoted on the forms, gives a possible error rate of just over 1 per 4000 samples received.

- Request errors were few but all involved failure to notify the laboratory of the need for irradiated components for patients being treated with purine analogues.

- Errors of laboratory sample handling and testing were lower than in the 1997/98 pilot study (9.7% compared to 25%) but nevertheless point to mistakes in clerical and technical tasks.

- Failure to select components with the correct special requirements, despite the presence of appropriate laboratory records, comprised 36% of laboratory component selection, handling and storage errors.

- Labelling errors occurred in the laboratory on 6 occasions (24% of component selection, handling and storage errors)

- Incorrect storage of components by non laboratory personnel outside the confines of the laboratory was reported on 10 occasions, 3 during transportation of components between sites.

- There were only 3 incidents of collection of the wrong blood from blood banks in contrast to the high incidence of this type of error in IBCT events where failure at this point was always followed by failure of the bedside check.

RECOMMENDATIONS

- Failure to follow phlebotomy protocols is a common cause of “near miss” events. The reasons for this should be identified and appropriate training given to all staff who undertake this procedure.

- Individuals responsible for ordering blood components must be familiar with the special needs of their patients, as emphasised in Chapter 7.

- Despite the rigorous standards which apply in most hospital blood banks there is a need for constant vigilance and regular review of competence in order to avoid clerical and technical errors.

- The laboratory record is an essential tool in ensuring correct component selection. This report suggests that it is sometimes ignored.

- There is a clear need to educate staff responsible for the handling of blood components as to their correct handling, storage and transport.