

# Statewide comparative audit of blood transfusion, Victoria 2005

An audit of blood transfusion policy, procedures and administration practice

BeST

Better Safer Transfusion

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## Executive Summary

During recent decades the major focus of blood transfusion safety has been on making blood products themselves safer, particularly with respect to reducing the risk of viral transmission.

Increasing international awareness that errors occurring within the hospital setting are the cause of most transfusion associated morbidity and mortality has focused attention on establishing systematic programs to improve the quality and safety of hospital transfusion practices.

During 2005 the Better Safer Transfusion Program (BeST) invited hospitals across Victoria to participate in an audit to examine the quality of transfusion at the bedside – a common site for transfusion error. These audits compared existing hospitals' policies and actual transfusion practices against recently released national guidelines for good transfusion practice<sup>1</sup>.

The audits reviewed existing institutional blood administration policies and procedures and actual transfusion practice during a prospective observational bedside audit of transfusion episodes.

The audit was ambitious, with the aim of recruiting every hospital in Victoria that transfuses blood products. Audit proforma were sent to 144 hospitals and health services. Policy and procedure audit responses were received from 88 organisations, with 79 of these health services submitting prospective administration audit data on 1,329 transfusion episodes.

## Key Lessons

### ➤ **Hospital staff benefit from access to comprehensive policies and procedures governing good transfusion practice**

1. There was a general correlation observed between the availability of comprehensive, best-practice policies and procedures for good transfusion practice and safe actual transfusion practice within that hospital.
2. There was evidence of considerable discrepancy between policy and practice in some institutions. In particular there was a trend for large hospitals to report actual transfusion practice that was inconsistent with comprehensive, best-practice local policies and procedures.
3. Existing hospital policies frequently lack important details in crucial elements required to assure safe transfusion.

### ➤ **Accurate patient, blood sample and blood product identification prior to the commencement of blood transfusion are critical steps in transfusion safety. Too many hospitals do not have local systems to support these critical transfusion safety processes.**

1. The majority of hospitals (95 per cent) did have some written transfusion policies and procedures. However over one third of hospitals (34 per cent) did not have **any** policy on the critical patient safety processes of collection and labelling of samples for pre-transfusion testing (blood group and crossmatch). Also, 58 per cent of hospitals did not specify which staff could collect these critical specimens.
2. 31 per cent of hospitals did not have a policy requiring all patients receiving blood transfusion to wear a patient identification band. Only 61 per cent of hospitals required patients, wherever possible, to positively identify themselves by stating their name and date of birth prior to transfusion.

3. Only 52 per cent of hospitals had any policy for the correct identification of unconscious patients.
4. The audit of actual transfusion practice identified 96 patients (7.6 per cent of all transfused patients) who were not wearing wristband identification during their transfusion.

➤ **Recognition and early management of transfusion reactions is critical to reduce transfusion-associated morbidity and mortality.**

1. While the majority (88 per cent) of hospitals had policy and procedure statements mandating pre-transfusion observations, only 67 per cent required the recording of post-transfusion observations.
2. The audit of actual transfusion practice indicated that while 90 per cent of patients had pre-transfusion observations recorded, only 80 per cent had any record of post-transfusion observations.
3. The audit of actual transfusion practice identified 32 adverse events in transfused patients. Almost half of these patients (47 per cent) had no medical note regarding these adverse events and fully one third (31 per cent) had no nursing record of these events.

➤ **It is strongly recommended by all expert authorities that every patient be given a clear explanation of the potential benefits and risks of transfusion as an integral component of good transfusion practice.**

1. Only 36 per cent of hospitals had policies requiring staff to inform patients about the risks and benefits of blood transfusion.
2. In 25 per cent of actual transfusion episodes, there was no record of the reason for transfusion. In any follow-up of delayed adverse transfusion events, it is essential that it is possible to assess the rationale for the decision to transfuse.

## 1. Your health service report

### Hospital protocol and practice audit – results

## 1. Your health service report

### Hospital protocol and practice audit – risk assessments

## 1. Your health service report

### Policy practice matrix

## 2. Background and methodology

In June 2005, the Better Safer Transfusion (BeST) Program Advisory Committee commenced a statewide audit of aspects of clinical transfusion practice at selected Public and Private hospitals across Victoria.

A major component of these audits was an audit of hospital protocols (policy and procedures) and actual everyday transfusion practice at every hospital currently in receipt of fresh blood products for transfusion. The essential structure for these 'Protocol and Practice Audits' was derived from an audit tool developed in the United Kingdom by the National Blood Service in collaboration with the Royal College of Physicians.<sup>2</sup>

This audit compared blood transfusion protocols and practices across Health Hospitals to assess

- the level and quality of existing local protocols [policies and procedures] that existed in hospitals governing blood product transfusion
- everyday transfusion practice to determine adherence to these hospital protocols by staff when transfusing patients
- the correlation between the existence of comprehensive, best practice protocols governing transfusion and the consistent delivery of high quality, safe transfusion practice.

This audit utilised two tools to analyse 'Protocols and Practice' (Appendix 1):

1. a desk-top audit of local hospital-wide policy and procedure(s) for blood transfusion
2. a prospective Audit of actual local blood product administration practices.

The first tool required sites to detail key elements of their transfusion protocols including:

- the existence of written policies
- how these policies addressed
  - labelling and cross-matching for red cell transfusion
  - staff permitted to take samples for blood grouping and cross-matching, and their training
  - wearing of wristbands and the information on wristbands
  - administration practices in conscious and unconscious patients
  - pre- and post-transfusion observations
  - actions taken in the event of an adverse reaction to transfusion
  - provision of information to patients about the risks and benefits of blood transfusion.

The second tool obtained information from a sample of actual transfusion episodes. This included:

- the setting of transfusion (inpatient or outpatient)
- ability to observe the patient during transfusion
- whether the patient was conscious or unconscious
- whether wristbands were worn during the transfusion and the information they contained
- dates and times of transfusions, checks on compatibility and signatories to transfusion records
- pre- and post-transfusion observations
- the recording and response to adverse events.

Data from both tools was entered manually into custom-built Microsoft Access databases with pre-formatted fields. This pre-formatting for data fields in conjunction with routine post entry checks ensured data validity.

The results derived from the two audit tools are reported separately. Case studies are also provided that compare practice outcomes at hospitals without any formal transfusion protocols, 'incomplete' transfusion protocols and 'comprehensive' transfusion protocols.

### 3. Statewide report (cumulative results)

#### 3.1 Results

##### 3.1.1 Hospital transfusion protocol audit

A total of 88 hospitals responded to the request for information regarding local policy and/ or procedures governing blood product transfusion (61 per cent return rate). There were 65 responses from public hospitals and 23 responses from private hospitals.

Overall 94 per cent of hospitals indicated that they had established some hospital-wide transfusion protocols (94 per cent of public hospitals and 96 per cent of private hospitals). Five hospitals reported having no formal transfusion protocols at the time of the audit.

##### Labelling and cross-matching for transfusion

Only 66 per cent of hospitals had protocols that encompassed the requirements for labelling blood samples for 'group and cross match', with no significant differences between public and private hospitals (65 per cent versus 70 per cent).

The majority of hospitals (58 per cent) had no protocols governing the categories of staff authorised to draw blood samples for 'group and cross match'. Very few hospitals (14 per cent) had transfusion protocols that included any requirement for specific training for staff drawing blood samples for 'group and cross match'.

The responses suggested that many sites had protocols that were largely generalised with fewer addressing the more complex issues of training and certification.

##### Blood administration protocols

Nearly all hospitals (92 per cent) had a protocol governing the administration of blood. Some hospitals indicated that although no formal protocol currently existed, draft protocols had been submitted for review by relevant hospital authorities.

##### Patient identification protocols

Sixty-nine per cent of hospitals had protocols detailing the requirement to have patient identification wristbands on all patients during transfusion (with more private hospitals (78 per cent) than public hospitals (65 per cent) providing an affirmative response to this audit element).

Thirty-five per cent of hospitals did not specifically address mechanisms for patient identification within their transfusion protocols. A number of respondent hospitals noted that local practices included the routine use of patient identification wristbands for all treatment (including transfusion), but their hospital transfusion protocols did not reference (or cross-reference) any specific requirement regarding the means for patient identification for transfusion.

Most hospitals (86 per cent) reported having some formal processes to verify identity prior to transfusion in local transfusion protocols. Eighty-three per cent of those with such transfusion protocols used a patient identification wristband as the primary source of patient identity verification. Only 61 per cent of hospitals require a patient to affirm their identity by stating their name and date of birth. Several respondent hospitals indicated that 'name and date of birth' were not included in their transfusion protocols, but rather that their transfusions protocols stipulated affirmation of name only, but not date of birth.

Only 52 per cent of hospitals addressed means for the identification of unconscious patients requiring transfusion within hospital transfusion protocols.

### Pre- and post-transfusion observations protocols

Most hospitals (88 per cent) had protocols mandating pre-transfusion observations. Most of these protocols (72 of 77) required the recording of pulse, temperature, blood pressure and respiration rate prior to transfusion. More private hospitals (96 per cent) required pre-transfusion observations than public hospital (84 per cent).

Relatively fewer hospitals mandated post-transfusion observations in their transfusion protocols. Only 67 per cent of hospitals (n=59) reported that post-transfusion observations were required by hospital transfusion protocols, with 57 of these 59 hospitals mandating recording of pulse, temperature, blood pressure and respiration in these protocols.

### Transfusion reaction reporting protocols

Most hospitals (90 per cent, n=79) had protocols regarding the action required in the event of a transfusion reaction. Nearly all of these (78 of 79) included stopping the transfusion, contacting medical staff (77 of 79) and notifying the hospital blood bank (70 of 79). More Private hospitals (96 per cent) reported inclusion of adverse reaction protocols for transfusion than public hospitals (87 per cent).

### Protocols for provision information to transfused patients

Only a third of respondent hospitals (36 per cent) had transfusion protocols that require staff to inform patients about any aspect of blood transfusion. Twenty-two per cent of private facilities reported such requirements in transfusion protocols compared to 43 per cent of public hospitals.

## 3.1.2 Hospital transfusion practice audit

There were a total of 1,329 transfusion events in the audit data provided by 79 hospitals. Of these transfusion events, 1,087 (82 per cent) involved inpatients and 239 (18 per cent) involved outpatients. In 3 transfusion events (0.2 per cent) no location information was recorded.

Most transfusion events were not in secluded areas (87 per cent, n=1,161 versus 12 per cent, n=162 occurring in secluded environments). Six events (0.4 per cent) had no information recorded.

Nearly all transfusion events involved conscious patients (93 per cent, n=1,238 conscious, versus only 6 per cent, n= 77 events involving unconscious patients). In fourteen events no relevant information was recorded.

### Identification Wristbands

Most patients (92 per cent, n=1,228) wore identification wristbands during the transfusion episode. In a total of 101 transfusion events wristbands were either not present during transfusion (n=96) or the question was unanswered (n=5).

Of those patients not wearing wristbands the majority were outpatients (69 per cent, n=70). This means that almost one third (29 per cent, 70 of 239) of all outpatient transfusions monitored in this audit were administered to patients not wearing wristband identification. In contrast only 3 per cent (31 of 1,090) of monitored inpatient transfusions were administered to patients not wearing wristband identification.

In the 77 unconscious transfused patients reported in this audit, two were administered to patients not wearing wristband identification.

**Key Comment 1:** 8 per cent of all patients did not wear wristband identification during transfusion. The majority of these events occurred in transfused outpatients, where it is common to not use wristband identification to assure safe transfusion practices. Most inpatients (97 per cent) wore wristbands during their transfusions.

**Transfusion of unconscious patients in the absence of wristband identification markedly increases the potential for serious errors in transfusion practice**

Table 1 shows the information elements recorded on wristbands.

Table 1: Identification Wristband Elements totals

Identification Wristband	Number with details ON the wristband	Percentage (%) of all wristbands
Surname	1,227	99.9
Family Name	1,206	98
Gender	864	70
Date of birth	1,089	89
Hospital Identification Number	1,225	99.8
Match with Compatibility Report	1,196	97

#### Administration documentation

Table 2 shows some individual administration steps reported as documented in the patient record.

Table 2: Records of signatories, date and times of transfusion

Administration record	Number WITH records	Percentage (%) of all episodes
Signature of person administering the blood	1,321	99
Date of transfusion	1,319	99
Commencement time of transfusion	1,219	91
Stop time of the transfused unit	933	70

**Key comment 2:** In most transfusion events the signature of the person administering the blood and the date and time of commencement were recorded. However, in 30 per cent of transfusions the 'stop' time of the transfused unit was not recorded. Stop times are important for accurate identification of transfusion reactions.

The overwhelming majority of events (96 per cent) of patients had pre-transfusion observations recorded, with only some minor variation in the scope of these recorded observations. Table 3a shows the individual observation elements reported on patients before transfusion.

Table 3a: Pre-transfusion observations

Pre-transfusion observations	Number	Percentage (%) of all episodes
Blood Pressure	1,257	94
Temperature	1,274	96
Pulse	1,244	94
Respiration	1,202	90

In marked contrast, in many fewer was there any recorded post transfusion observations. Table 3b gives the numbers of patients reported as having recorded post-transfusion observations

Table 3b: Post-transfusion observations

Post-transfusion observations	Number	Percentage (%) of all episodes
Blood Pressure	1,084	82
Temperature	1,065	80
Pulse	1,097	83
Respiration	1,059	80

These findings were consistent with fewer hospitals mandating the recording of post-transfusion observations in hospital protocols (see **Pre- and Post- observations protocols; above**)

**Key comment 3:** While nearly all transfusion episodes are preceded by the recording of relevant vital sign observations, in fully 20 per cent of transfusion events there were no recorded post- transfusion observations. Safe transfusion requires recording of both pre- and post-transfusion observations in all transfused patients.

### Recording of Reason for Transfusion

In three-quarters of transfusion episodes (75 per cent, 1,003 of 1,329) there was a 'reason for transfusion' recorded in the patient file. The failure to record a reason for transfusion was more common in outpatient transfusions (35 per cent, n=83 with no record of reason for transfusion in 239 outpatient transfusion episodes).

**Key comment 4:** The reason for transfusion may be obvious to staff at the time of transfusion, but it must always be recorded in the medical record. Follow-up of delayed adverse transfusion events must include an assessment of the rationale for the decision to transfuse.

### Adverse Transfusion Events

The audit data captured 32 transfusion episodes that were associated with adverse outcomes in the transfused patient (2 per cent, n=32 of 1,329). However in nearly half of these adversely affected patients (47 per cent, n=15) there was no notation in their record by their medical attendants that an adverse transfusion outcome had occurred and in almost a third (31 per cent, n=10) there was no record of the adverse event by their nursing attendants.

**Key comment 5:** The recording of adverse transfusion events is important. Medical and nursing notes must appropriately record all adverse transfusion events.

## 3.2 Case Studies

### 3.2.1 Transfusion practice outcomes in 'no protocol' hospitals compared to hospitals with any transfusion protocols

Of the five hospitals reporting an absence of hospital transfusion protocols, three provided actual transfusion practice audit information on 71 transfusion events. One site was a specialist and referral hospital (30 events); one was a large hospital (11 events) and one was a medium regional hospital (30 events). These transfusion practice audit results were analysed to determine whether the lack of hospital transfusion protocols translated into an increased likelihood of observed deviations from accepted safe transfusion practice when compared to respondent hospitals with transfusion protocols that were deemed 'incomplete' or 'complete'.

The number of positive responses to each measure of best practice by each respondent hospital was converted to a percentage 'score'. These scores were compared to those in respondent hospitals matched for hospital size (specialist referral, large or medium) that had in place any transfusion policies, whether 'complete' or 'incomplete'.

The results of these comparisons are shown below in Table 4.

Table 4: Comparison of audit of actual transfusion practice for hospitals with any transfusion protocols and hospitals without transfusion protocols

Audit Element	NO Transfusion Policy (n = 71)	Transfusion Policy (n = 667)	Comment
	% Yes	% Yes	
Inpatient Admission?	69	82	
Continuous Observation?	93	90	
Patient Conscious?	85	90	
Wearing Wristband?	87 (n = 62)	91 (n = 605)	
Family Name?	100	100	Only in those patients wearing wristbands
First Name?	92	98	Only in those patients wearing wristbands
Gender?	69	72	Only in those patients wearing wristbands
Date of Birth	42	89	Only in those patients wearing wristbands
Hospital ID Number	98	99	Only in those patients wearing wristbands
Entry via A & E?	0	2	All no policy sites have Accident and Emergency Departments
Was report matched to wristband ID?	90	99	Only in those patients wearing wristbands
Report signed by transfuser?	99	98	
Was commencement time recorded?	76	89	
Was completion time recorded?	59	61	
Pre-Transfusion Blood Pressure?	83	94	

Audit Element	NO Transfusion Policy (n = 71)	Transfusion Policy (n = 667)	Comment
	% Yes	% Yes	
Pre-Transfusion Pulse?	93	94	
Pre-Transfusion Temperature?	93	92	
Pre-Transfusion Respiration?	79	90	
Post-Transfusion Blood Pressure?	63	78	
Post-Transfusion Pulse?	73	75	
Post-Transfusion Temperature?	76	79	
Post-Transfusion Respiration?	70	76	
Reason for Transfusion?	56	76	
Adverse Events	4	2	Percentage of all events with adverse reaction to transfusion
Recorded in Medical Notes?	100	N/A	Of all adverse events
Recorded in Nursing Notes?	100	N/A	Of all adverse events

It appears that hospitals with transfusion protocols are more likely to actually deliver safe transfusion services to their patients than hospitals without transfusion protocols. Hospitals without transfusion protocols quality and safety elements, such as checking the date of birth and gender on a patient wristband were less likely to be consistently completed.

### 3.2.2 Transfusion practice outcomes in 'no protocol' hospitals compared to hospitals with 'complete' transfusion protocols

Four respondent hospitals had transfusion protocols that were fully compliant with recognised best practice for safe, high quality transfusion. We compare their transfusion practice audit results with the three sites that had no transfusion protocols.

A total of 85 transfusion events were identified as occurring within the four-exemplar sites. One site was a specialist and referral hospital (30 events); one was a small acute (regional) hospital (30 events), one a large hospital (26 events) and the last was a small not acute hospital (9 events).

The results of the transfusion practice audits are displayed in Table 5.

Table 5: Comparison of audit results for sites with complete policies compared to those without written policies

Audit Element	NO Transfusion Policy (n= 71)	Complete Transfusion Policy (n= 85)	Comment
	% Yes	% Yes	
Inpatient Admission?	69	60	
Continuous Observation?	93	99	

Audit Element	NO Transfusion Policy (n= 71)	Complete Transfusion Policy (n= 85)	Comment
	% Yes	% Yes	
Patient Conscious?	85	92	
Wearing Wristband?	87 (n = 62)	92 (n = 78)	
Family Name?	100	100	Only in those patients wearing wristbands
First Name?	92	92	Only in those patients wearing wristbands
Gender?	69	73	Only in those patients wearing wristbands
Date of Birth	42	92	Only in those patients wearing wristbands
Hospital ID Number	98	83	Only in those patients wearing wristbands
Entry via A & E?	0	0	
Was report matched to wristband ID?	90	92	Only in those patients wearing wristbands
Report signed by transfuser?	99	100	
Was commencement time recorded?	76	97	
Was completion time recorded?	59	62	
Pre-Transfusion Blood Pressure?	83	100	
Pre-Transfusion Pulse?	93	100	
Pre-Transfusion Temperature?	93	99	
Pre-Transfusion Respiration?	79	95	
Post-Transfusion Blood Pressure?	63	97	
Post-Transfusion Pulse?	73	97	
Post-Transfusion Temperature?	76	97	
Post-Transfusion Respiration?	70	97	
Reason for Transfusion?	56	80	
Adverse Events	4	1	Percentage of all events with adverse reaction to transfusion
Recorded in Medical Notes?	100	100	Of all adverse events
Recorded in Nursing Notes?	100	100	Of all adverse events

Hospitals with complete transfusion protocols had a higher proportion of outpatient transfusion events than the group with no policies. Overall, respondent hospitals recorded poorer audit results audit for outpatient transfusions (especially in the wearing of wristband identification). Despite this potential confounder, those hospitals with 'complete' transfusion protocols demonstrated an overall better actual transfusion practice than hospitals lacking transfusion protocols.

This effect was most noticeable for appropriate recording of post-transfusion observations, the use of recommended identification elements on wristbands and the recording of the reason for transfusion in the patient medical record.

### 3.3 Overall ranking of hospitals transfusion protocols and practice

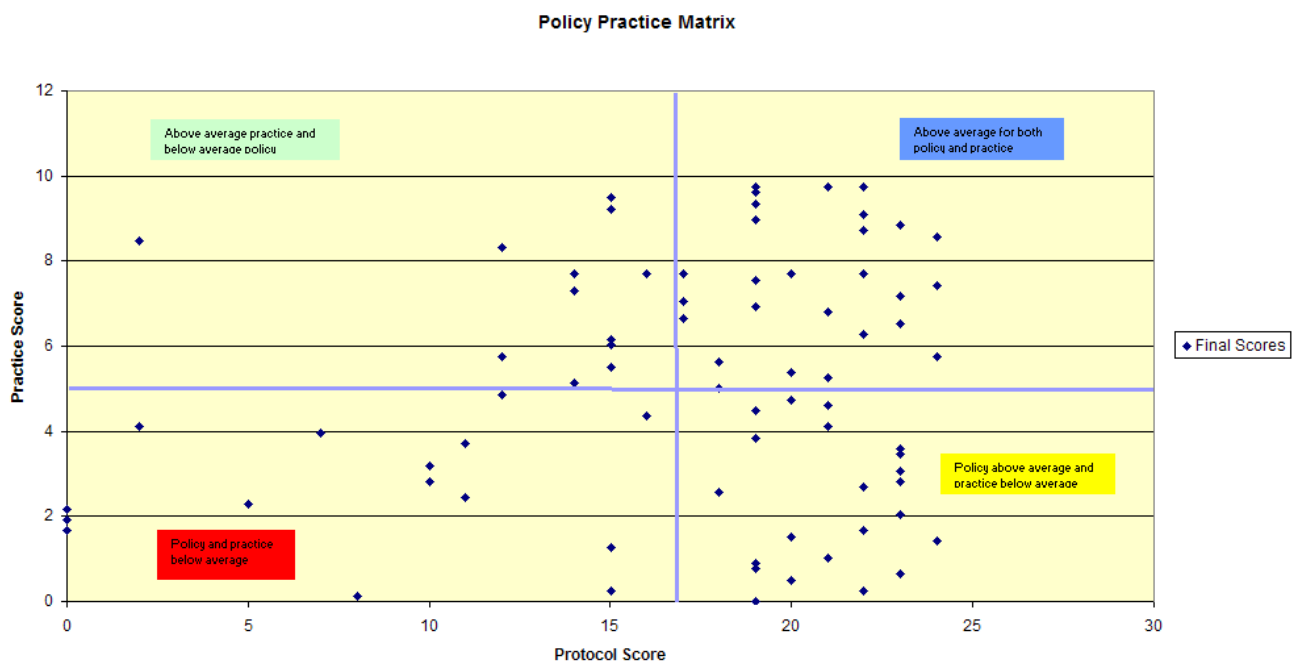
All hospitals that provided responses to both policy and practice audits were ranked according to their alignment with national best practice for transfusion safety.

The **protocol** audit tallied all the “Yes” responses from the ‘Audit of hospital-wide policy and procedure(s) for blood transfusion’ audit tool. The **protocol** scores ranged from 0 to 24, with an average of 17 (median 19; mode 19). More sites were above the average score than were below (27 of 76 plus three sites with average scores of 17). Most hospitals (82 per cent) were within one standard deviation (6) of the mean. Four hospitals tracked at the higher end of this scoring scale and 10 hospitals fell at the lower end of this scale, although these were within one standard deviation of the mean.

A **practice** rank was derived from a targeted set of questions assessed on the practice audit for their “Yes” responses. Questions on the practice audit eliciting responses not directly aligned to transfusion protocols were not assessed. This process generated a list of 76 hospitals ranked according to their audit results for transfusion **practice**. The **practice** percentiles were converted into values in the range 0-10. The mean and median scores were both 5 with 8 the most common score (mode). The standard deviation was 3.

The policy and practice results for each hospital are displayed in matrix form with **protocol** as the independent factor and **practice** the dependent. These results are shown in Graph 1 below

Graph 1: Protocol-practice matrix for blood transfusion at sites



### 3.4. Discussion

#### 3.4.1 Hospital protocols

Hospital protocols frequently lacked key elements or details for key elements that are deemed important in the delivery of high quality, safer transfusion practice. Most noticeable was the absence of protocol elements on labelling blood samples, reference to training of staff groups and credentialling to draw samples for 'group and crossmatch' for blood transfusion.

**Key comment:** without a policy on training and credentialling for grouping and labelling blood samples, there is increased potential for error. At best this may generate confusion and lost time because of the need to take additional samples from a patient. At worst it may contribute to 'wrong blood' transfusion events and the associated patient harm. Nominating individual staff able to take such samples may be unrealistic in sites with limited staff numbers, however requiring specific training processes to be completed by staff will benefit patient safety

Almost one third of hospitals did not specifically require patient wristbands for transfused protocols, although most stipulated use of some formal identification process when matching patient to transfusion that included the option of use of wristbands.

**Key comment:** accurate patient and blood product identification require staff to check wristbands before transfusion. Mandating the wearing of wristband identification during transfusion should be included in all transfusion protocols. Protocols must also refer to acceptable alternatives where patients cannot wear wristbands to minimise the potential for identity errors in transfusion

Most hospitals required the recording of pre-transfusion observations in their transfusion protocols, but 30 per cent of hospitals failed to mandate the recording of observations during and after transfusion or the minimum acceptable frequency of recording such observations.

**Key comment:** pre- and post-transfusion observations are critical and equally important for optimising transfusion safety and must be core elements of hospital transfusion protocols. **Early management of transfusion reactions is critical in reducing transfusion-associated morbidity and mortality. Protocols must include steps to ensure the early recognition and management of any adverse transfusion reactions.**

Relatively few hospitals had protocols that required patients to be provided with information on transfusion within hospital transfusion protocols.

**Key comment:** there is consistent evidence that patients are often uncertain about the transfusion process and the rationale for transfusion. Formal protocols requiring the routine provision of information about the risks and benefits of transfusion to patients are to be encouraged. This information should include supported written materials that reinforce effective and valuable direct communication with patients and their carers by clinical staff at the time of transfusion.

### 3.4.2 Hospital practice audit

Although most inpatients wore wristbands during blood transfusion, outpatients were much less likely to do so. In the *National Comparative Audit of Blood Transfusion 2003*<sup>2</sup>, typical reasons provided for not having wristbands were:

- staff familiarity with patient
- neonates unable to wear wristbands
- oedema prevented wristband being applied
- lost wristband not replaced
- cannula insertion, access to veins
- patients removing wristbands.

**Key comment:** the time and cost involved in applying a wristband is minimal given the benefit provided in terms of positive patient identification. While many staff may be familiar with particular patients, this must not negate the placing of wristband identification (or an agreed alternative) on every transfused patient.

As fewer patients had post-transfusion observations recorded. It appears that some patients were not adequately monitored to detect changes indicative of adverse transfusion reactions as transfusions proceeded. Transfusion has a potential for causing serious adverse effects that without appropriate observation may go undetected and hence untreated.

**Key comment:** taking observations before, during and after transfusion allows staff to monitor for unwanted changes in patient condition.

Only 75 per cent of transfusion events had a written record of the reason for transfusion in either the medical or nursing notes. There was a disproportionate likelihood of this information not being recorded in transfused outpatients.

There were relatively few adverse events detected by the practice audit. It is a concern that a substantial proportion of these adverse events were not recorded in the patient's medical record by either the attendant medical or nursing staff.

#### Practice and Protocol Linkages and Observed Outcomes

There was evidence of considerable discrepancy between protocol and practice in many hospitals.

A number of hospitals with 'incomplete' transfusion protocols scored well in their transfusion practice audits. Indeed the best outcomes in these transfusion practice audits were seen in relatively small hospitals, especially regional public hospitals and metropolitan private hospitals.

However hospitals without transfusion protocols typically had below average transfusion practice audit results. On the outcome matrix (see Graph 1: Policy-practice matrix for blood transfusion at site) these hospitals group on the Y-axis around a practice score of 2. The highest rank for a hospital without transfusion protocols was 62<sup>nd</sup> of 76.

**Key comment:** hospitals with above average transfusion practice despite below average transfusion protocols are likely to be heavily dependent on the skills and knowledge of individual staff for their current good performance.

Hospitals without transfusion protocols should resource policy and procedure development.

All hospitals need to implement clinical governance structures for transfusion to ensure that hospital transfusion protocols translate into safe and appropriate everyday transfusion practice.

The number of hospitals with above-average protocol scores and below-average practice scores is a concern. Many of these are large metropolitan hospitals with substantial transfusion workloads. Some tertiary referral and specialist hospitals recorded very low transfusion practice scores. Considering the vital importance of such centres in our health system, there is clearly a challenge to effectively and consistently communicate well-informed policy advice to those clinical staff responsible for transfusing staff.

**Key comment:** without implementation strategies and enduring clinical governance for transfusion safety, detailed hospital transfusion protocols have little positive effect on the quality of actual transfusion practice

Hospitals that achieved above average performance in both policy and practice elements of this audit were an interesting mix of public and private hospitals across both metropolitan and regional Victoria. The top four practice hospitals included three small regional public hospitals and one small metropolitan private hospital.

## Appendix 1

Audit form for protocol

Audit forms for practice

Information sheets

# Better Safer Transfusion (BeST) Program - Victoria

## Audit of Blood Transfusion Policy, Procedures and administration Practice

### Background

Blood and blood components are administered by a range of staff across hospitals. Access to and knowledge of hospital protocols for blood administration is important for patient safety and organisational risk management. This audit includes both the initial specimen collection for crossmatch and subsequent administration of blood product at the bedside.

Note should be taken of the ANZSBT/RCNA Guidelines for the Administration of Blood Components 2004.

The Better Safer Transfusion Program wishes to work with Victorian hospitals to ensure that blood components are administered to patients appropriately and safely.

The BeST Advisory Committee has identified the area of blood product administration policy and practice as an area for targeted desk and clinical audits in order to determine current practice across the State.

### Definition of Policy and Procedure:

The policy/procedure document refers to a document that is for **hospital-wide use** and that is authorised in accordance with hospital clinical policy/procedure processes for such documents [eg the hospital executive or delegate is responsible for authorising the document(s)].

### Audit Aims

To improve the quality of care provided to patients by ensuring that blood product administration policies and procedures are available, appropriate and practised within hospitals.

### Objective

- To determine if blood product administration policies and procedures are available and used within hospitals.
- To determine if blood product administration policies are consistent with the ANZSBT/RCNA guidelines 2004.

### Standards

Standards have been developed from the ANZSBT/RCNA Guidelines for the Administration of Blood Components 2004.

### Data Set for Blood Product Administration

The hospital transfusion committee (or equivalent), are asked to take this opportunity to ensure that the required steps for safe blood product administration are included in administration policy and procedures. This includes adequate documentation in the medical record. ANZSBT/RCNA guidelines (2004) recommend that medical record documentation includes:

- the compatibility report
- identity of the person administering the products
- checks made

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- patient observations
- transfusion reactions and action taken

### Methodology

The approach is to conduct two audits.

1. A short desk audit of the existing administration policy and procedures
2. A prospective observational audit of 30 random transfusion administration episodes at the bedside. It is important that this audit is conducted AT the time of transfusion and should be undertaken in a range of clinical settings within the hospital.

The Transfusion Committee (or equivalent) should designate member(s) of staff to record the information requested on the two proformas provided (Form: Audit of Hospital-wide Policy and Procedures for Blood Transfusion and Form: Prospective Audit of Blood Product Administration Practice). Further information for the data collection can be found in the 'Audit Information Sheet' attached.

All data collection forms comply with the Privacy Acts.

### Time Frame:

Either 30 random transfusion episodes or all transfusion episodes from **1 June to 26 August 2005**.

A designated member of Hospital staff will undertake data collection. The BeST secretariat will co-ordinate the audit, taking responsibility for the distribution of audit collection tools, data entry and analysis, and will collaborate with the BeST Advisory Committee in formulating the audit report. The BeST Advisory Committee will disseminate results to the participating hospitals.

**If further information is required please contact:**

- Ms Karen Botting, Project Officer – BeST on Tel: 03 9349 4026 or email: karen.botting@dhs.vic.gov.au
- Ms Nadine Gilby, Transfusion Nurse- BeST on Tel: 03 9349 5715 or email: nadine.gilby@dhs.vic.gov.au

## Better Safer Transfusion (BeST) Program-Victoria

### Audit of blood transfusion policy, procedures and administration practice

#### Audit Information Sheet

**Aim** of the audit is to improve the quality of care provided to patients by ensuring that blood product administration policies and procedures are available and practised within the hospital. These policies and procedures should be consistent with the ANZSBT/RCNA 2004 Guidelines for the Administration of Blood Components.

- 2 Audit form's are provided, these include:
  - The 'Audit of hospital-wide policy and procedures for Blood Transfusion '. This is a desk audit requesting assessment of the hospital policy in line with the 'Guidelines for the Administration of Blood Components' ANZSBT/RCNA.
  - The 'Prospective Audit of Blood Product Administration practice '. This is an observational audit requiring an auditor to go to the bedside of a transfused patient.
- Both of the audit tools have been provided with a Hospital code. This is to aid data analysis and ensure confidentiality of results published. All results published from the audit will be de-identified.
- We request that both of the audit tools (The desk audit and the observational audit) be completed by all hospitals. For the observational audit (the Prospective Audit of Blood Product Administration Practice) we have provided a template which may be used to collect data on 30 blood product administrations. For the purpose of this audit the transfusion of each single unit of a blood component is considered an administration episode. It is recommended that only one unit per patient administration episode (if the patient is receiving more than one unit of a blood component for the current indication) be recorded.
- The desk audit tool 'Audit of hospital-wide policy and procedure for Transfusion' may be completed at any time. The 'Prospective Audit of Blood Product Administration Practice' (observational audit) requires attending the patient bedside at the time of transfusion. Within this observational audit there are requests for information recorded at the completion of the transfusion. It is recommended that the audit be done as closely as possible to the completion of the unit.
- A return post paid envelope is enclosed, it is requested that this be used to return the audit forms to us by **2 September 2005**.

If the audit tools are misplaced, or further information is required please contact:

- Karen Botting BeST Project Officer on Tel: 9349 4026 or email: karen.botting@dhs.vic.gov.au
- or Nadine Gilby Transfusion Nurse BeST on Tel: 9349 5715 or email: nadine.gilby@dhs.vic.gov.au

For a copy of the 'Guidelines for the Administration of Blood Components (ANZSBT/RCNA), please refer to the website: [www.health.vic.gov.au/best](http://www.health.vic.gov.au/best), under the title resources on the HOME page.

## Better Safer Transfusion (BeST) Program

### Audit of Hospital-wide Policy and Procedure(s) for Blood Transfusion

*Definition of policy and procedure(s):* The policy/procedure document refers to a document that is for **hospital-wide use** and that is authorised in accordance with hospital clinical policy/procedure processes for such documents [eg the hospital executive or delegate is responsible for authorising the document(s)].

Hospital Code \_\_\_\_\_ Form Completed by ( name) \_\_\_\_\_

Title of post \_\_\_\_\_ Contact Number \_\_\_\_\_

1. Does your hospital have written policies on blood transfusion practice? Yes No

If **YES** please continue below

If **NO** please return this questionnaire in the FREEPOST return envelope provided

2. Is there a written policy statement on the labeling of blood samples for blood grouping and cross matching? Yes No

3. Is there a written policy statement on which staff can take samples for blood grouping and cross matching? Yes No

4. Is there a written policy statement on what training should be given to staff who can take samples for blood grouping and cross-matching? Yes No

5. Is there a written policy stating that wristbands should be worn during transfusion by:

a) All patients?	Yes	No
b) All patients unless a specified alternative method is used (i.e. where an emergency number has been allocated to an unknown patient in the emergency department)	Yes	No

6. Is there a policy statement about the administration of blood in your hospital? Yes No

If **YES** please go to question 7

If **No** please go to question 10

7. Is there a policy statement on how the identity of the patient is verified prior to transfusion? Yes No

a) If <b>YES</b> does it contain the following for <u>conscious</u> patients?		
i) Ask the patients to state forename and surname and DOB	Yes	No
ii) Check the patient's wristband?	Yes	No

## Better Safer Transfusion (BeST) Program

### Audit of Hospital-wide Policy and Procedure(s) for Blood Transfusion

- b) If **YES** does it contain the following for unconscious patients?
- |  |     |    |
|--|-----|----|
| i) Check the patients wristband for forename and surname     | Yes | No |
| ii) Check the patients wristband for DOB and hospital number | Yes | No |
- 8. a)** Is there a policy statement that pre-transfusion observations should be made?      Yes      No
- If **YES** does it include:
- |                 |     |    |
|-----------------|-----|----|
| i. Pulse        | Yes | No |
| ii. Temperature | Yes | No |
| iii. BP         | Yes | No |
| iv Respirations | Yes | No |
- 8. b)** Is there a policy statement that post-transfusion observations should be made?      Yes      No
- If **YES** does it include:
- |                 |     |    |
|-----------------|-----|----|
| i. Pulse        | Yes | No |
| ii. Temperature | Yes | No |
| iii. BP         | Yes | No |
| iv Respirations | Yes | No |
- 9.** Is there a policy statement that specifies what to do in the event of a transfusion reaction?      Yes      No
- If **YES** does it include:
- |   |     |    |
|---|-----|----|
| i. Stop transfusion   | Yes | No |
| ii. Contact blood bank (Transfusion laboratory or supplier) | Yes | No |
| iii. Seek advice from medical staff                         | Yes | No |
- 10.** Does the written policy state that hospital staff routinely give information to patients about blood transfusions before the blood transfusion?      Yes      No

**Thank you for taking the time to complete this questionnaire**

Audit forms are to be returned in the post paid envelope provided.

If audit tools are misplaced, or further information is required please contact:  
 - Karen Botting, BeST Project Officer on Tel 03 9349 4026 or  
 email: karen.botting@dhs.vic.gov.au  
 - or Nadine Gilby, BeST Transfusion Nurse on Tel 03 9349 5715 or  
 email: nadine.gilby@dhs.vic.gov.au

# Better Safer Transfusion (BeST) Program-Victoria

## Prospective Audit of Blood Product Administration Practice

Each column requires data from the patient's bedside. **This form must be completed at the time of the transfusion episode.** Please write **Y** for 'Yes' in each column where evidence is found or **N** for 'No' where there is no evidence present, alternatively N/A where the statement is not applicable to the transfusion episode.

Hospital Code \_\_\_\_\_

AUDIT ID	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
1. Is the patient an in-patient (admitted to a clinical area at least as an overnight admission?)															
2. Is the patient having the transfusion in an area that is <u>not</u> secluded, where the patient can easily be visually monitored by staff throughout the transfusion episode?															
3. Is the patient conscious?															
<b>4. Identification Wristband</b>															
a) Is the patient wearing an identification wristband?															
b) If yes, does the wristband contain the patient's surname?															
c) If yes, does the wristband contain the patient's first name?															
d) If yes, does the wristband contain the patient's gender?															
e) If yes, does the wristband contain the patient's date of birth?															
f) If yes, does the wristband contain the Patient Hospital Identification Number?															
g) If NO to any of the above, did the patient come in as an Unknown patient via the Accident and Emergency Department?															
h) Does the identity of the patient wristband match with the compatibility report and the blood being transfused?															
<b>5. Concerning the actual unit being transfused at the time of the audit</b>															
Is the compatibility report or the prescription sheet signed by the person administering the blood?															
b) Is the date of the transfusion recorded on the compatibility report or the prescription sheet?															

# Better Safer Transfusion (BeST) Program-Victoria

## Prospective Audit of Blood Product Administration Practice

AUDIT ID	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
c) Has the commencement time of the unit been recorded on the documentation of the patient transfusion observations?															
d) Has the stop time of the unit been recorded on the documentation of the patient transfusion observations?															
<b>6. Considering the unit currently being transfused</b>															
a) What time did the unit commence (please write a time in accordance with the 24/24 clock i.e. 1700hrs)															
b) Was a pre-transfusion Blood Pressure (BP) recorded?															
c) Was a pre- transfusion pulse recorded?															
d) Was a pre- transfusion temperature recorded?															
e) Was a pre- transfusion respiration count recorded?															
f) Was a post-transfusion blood pressure recorded?															
g) Was a post- transfusion temperature recorded?															
h) Was a post transfusion pulse recorded?															
i) Was a post transfusion respiration rate recorded?															
<b>7. Transfusion Indication</b>															
a) Is there a clear statement in the medical notes giving the reason for the transfusion?															
<b>8. Adverse Transfusion Event</b>															
a) Is there any record of the patient having had an adverse effect due to the transfusion? (Symptoms include: fever >1°C above baseline pre-transfusion, rigors, pain in the chest or abdomen, hypotension (decreased BP), tachycardia (increased HR), rash/itching, breathlessness, nausea/vomiting, haemoglobinuria)															
b) If a transfusion event has occurred is it recorded in the medical notes?															
c) If a transfusion event has occurred is it recorded in the nursing notes?															

# Better Safer Transfusion (BeST) Program-Victoria

## Prospective Audit of Blood Product Administration Practice

Each column requires data from the patient's bed-side. **This form must be completed at the time of the transfusion episode.** Please write **Y** for 'Yes' in each column where evidence is found or **N** for 'No' where there is no evidence present, alternatively N/A where the statement is not applicable to the transfusion episode.

Hospital Code \_\_\_\_\_

AUDIT ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. Is the patient an in-patient (admitted to a clinical area at least as an overnight admission?)															
2. Is the patient having the transfusion in an area that is <u>not</u> secluded, where the patient can easily be visually monitored by staff throughout the transfusion episode?															
3. Is the patient conscious?															
<b>4. Identification Wristband</b>															
a) Is the patient wearing an identification wristband?															
b) If yes, does the wristband contain the patient's surname?															
c) If yes, does the wristband contain the patient's first name?															
d) If yes, does the wristband contain the patient's gender?															
e) If yes, does the wristband contain the patient's date of birth?															
f) If yes, does the wristband contain the Patient Hospital Identification Number?															
g) If NO to any of the above, did the patient come in as an Unknown patient via the Accident and Emergency Department?															
h) Does the identity of the patient wristband match with the compatibility report and the blood being transfused?															
<b>5. Concerning the actual unit being transfused at the time of the audit</b>															
Is the compatibility report or the prescription sheet signed by the person administering the blood?															
b) Is the date of the transfusion recorded on the compatibility report or the prescription sheet?															

# Better Safer Transfusion (BeST) Program-Victoria

## Prospective Audit of Blood Product Administration Practice

AUDIT ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
c) Has the commencement time of the unit been recorded on the documentation of the patient transfusion observations?															
d) Has the stop time of the unit been recorded on the documentation of the patient transfusion observations?															
<b>6. Considering the unit currently being transfused</b>															
a) What time did the unit commence (please write a time in accordance with the 24/24 clock i.e. 1700hrs)															
b) Was a pre-transfusion Blood Pressure (BP) recorded?															
c) Was a pre- transfusion pulse recorded?															
d) Was a pre- transfusion temperature recorded?															
e) Was a pre- transfusion respiration count recorded?															
f) Was a post-transfusion blood pressure recorded?															
g) Was a post- transfusion temperature recorded?															
h) Was a post transfusion pulse recorded?															
i) Was a post transfusion respiration rate recorded?															
<b>7. Transfusion Indication</b>															
a) Is there a clear statement in the medical notes giving the reason for the transfusion?															
<b>8. Adverse Transfusion Event</b>															
a) Is there any record of the patient having had an adverse effect due to the transfusion? (Symptoms include: fever >1°C above baseline pre-transfusion, rigors, pain in the chest or abdomen, hypotension (decreased BP), tachycardia (increased HR), rash/itching, breathlessness, nausea/vomiting, haemoglobinuria)															
b) If a transfusion event has occurred is it recorded in the medical notes?															
c) If a transfusion event has occurred is it recorded in the nursing notes?															

## Appendix 2- Additional statewide comparative data

### Events by hospital classification

The classification system to group hospitals is the same as that used by the Australian Institute of Health and Welfare. Further details are provided at the end of this appendix.

Table A1-1: Events by hospital classification

Classification	Number of hospitals	Average events/hospital	Range	Median
Specialist & Major Referral (372 events)	13	28.6	14-30	30
Large Hospitals (202 events)	10	20.2	6-30	18
Medium Hospitals (206 events)	9	22.9	7-39	24
Small Acute (115 events)	6	19.2	5-30	19
Small Non Acute (434 events)	41	10.6	1-30	7

### Pre-transfusion observation by hospital classification

Table A1-2: Completed pre-transfusion observations as a percentage of all events for each hospital classifications

Classification	Blood Pressure %	Pulse %	Temperature %	Respiration %
Specialist & Major Referral (372 events)	93	95	93	89
Large Hospitals (202 events)	94	96	93	84
Medium Hospitals (206 events)	91	91	88	87
Small Acute (115 events)	96	99	97	96
Small Non Acute (434 events)	98	98	96	91

### Post-transfusion observations by hospital classification

Table A1-3: Completed post-transfusion observations as a percentage of all events for each hospital classification

Classification	Blood Pressure %	Pulse %	Temperature %	Respiration %
Specialist & Major Referral (372 events)	78	79	79	75
Large Hospitals (202 events)	84	88	85	82
Medium Hospitals (206 events)	67	63	67	66
Small Acute (115 events)	88	87	89	88
Small Non Acute (434 events)	89	88	89	86

## Summary of results for information wristbands

Table A1\_4: Identification wristbands as a percentage of all events by hospital classification

Classification	Events	Wristband Worn	Worn
1_SPECIALIST & MAJOR REFERRAL	372	355	95
2_LARGE	202	173	86
3_MEDIUM	206	176	87
4_SMALL ACUTE	115	104	90
5_SMALL NON ACUTE & MULTI PURPOSE	434	420	97

Table A1\_5: Identification wristbands with surname (family name)

Classification	No Surname	Surname
1_SPECIALIST & MAJOR REFERRAL		355
2_LARGE		173
3_MEDIUM		176
4_SMALL ACUTE		104
5_SMALL NON ACUTE & MULTI PURPOSE	1	419

Table A1\_6: Identification wristbands with first name

Classification	No response	Does Not Apply	No First Name	First Name
1_SPECIALIST & MAJOR REFERRAL		1	7	347
2_LARGE	7		4	162
3_MEDIUM			1	175
4_SMALL ACUTE				104
5_SMALL NON ACUTE & MULTI PURPOSE			1	419

Table A1\_7: Identification wristbands with patient gender

Classification	No response	No Gender	Gender
1_SPECIALIST & MAJOR REFERRAL		50	305
2_LARGE	6	102	65
3_MEDIUM		28	148
4_SMALL ACUTE	1	19	84
5_SMALL NON ACUTE & MULTI PURPOSE		158	262

Table A1\_8: Identification wristbands with patient date of birth

Classification	No response	No Date of birth	Date of birth
1_SPECIALIST & MAJOR REFERRAL		35	320
2_LARGE	6	8	159
3_MEDIUM		51	125
4_SMALL ACUTE		15	89
5_SMALL NON ACUTE & MULTI PURPOSE		24	396

Table A1\_9: Identification wristbands with hospital identification number

Classification	No response	No Id Number	Identification Number
1_SPECIALIST & MAJOR REFERRAL			355
2_LARGE	7	1	165
3_MEDIUM			176
4_SMALL ACUTE		9	95
5_SMALL NON ACUTE & MULTI PURPOSE		13	407

Classification definitions.

## Information source:

Department of Health and Ageing 2005, *The State of our public hospitals*, June, Australian Government,

[http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-ahca-sooph05-outs\\_apps.htm](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-ahca-sooph05-outs_apps.htm) [accessed June 2006].

Principal referral and specialist hospitals	Principal referral hospitals are major city hospitals with more than 20,000 and regional hospitals with more than 16,000 acute casemix-adjusted separations per year. Specialist hospitals are specialised acute womens' and childrens' hospitals with more than 10,000 casemix-adjusted separations per year.
Large hospitals	Large hospitals are major city acute hospitals with more than 10,000, regional acute hospitals with more than 8,000 and remote acute hospitals with more than 5,000 casemix-adjusted separations per year.
Medium hospitals	Medium hospitals are: - medium acute hospitals in regional and major city areas treating between 2,000 and 10,000 acute casemix-adjusted separations per year or - medium acute hospitals in regional and major city areas treating between 2,000 and 5,000 acute casemix-adjusted separations per year, and acute hospitals treating less than 2,000 casemix-adjusted separations per year, but with more than 2,000 separations per year.
Small acute hospitals	Small acute hospitals are: - small regional acute hospitals (mainly small country town hospitals) treating less than 2,000 separations per year and with less than 40 per cent non-acute and outlier patient days of total patient days or - small remote hospitals treating less than 5,000 acute casemix-adjusted separations but which are not multi-purpose and not small non-acute. Most have less than 2,000 separations per year.
Small non-acute hospitals and multi-purpose services	Small non-acute hospitals, treating less than 2,000 separations per year and with more than 40 per cent non-acute and outlier patient days of total patient days.

<sup>1</sup> Australian & New Zealand Society of Blood Transfusion and Royal College of Nursing Australia 2004, *Guidelines for the Administration of Blood Components*

<sup>2</sup> Stainsby D\*, Murphy M\*, Regan F\*, Grant-Casey J\*, Pearson M†, Lowe D†. 2003. *National Comparative Audit of Blood Transfusion: Comparative Report for Blood Transfusion in England*. National Blood Service\* and Royal College of Physicians†