

# Statewide comparative audit of blood transfusion, Victoria and Tasmania 2007

An audit of blood transfusion policy, procedures and administration practice



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## Acknowledgements

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Thanks to those in the project team that have been involved at various stages:

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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 2007 the 'Blood Matters - Better Safer Transfusion Program' 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 national guidelines for good transfusion practice<sup>1</sup>. This audit was a repeat of the audit conducted in 2005, allowing for observations to be made about any changes in practices within the hospitals since that time.

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

To remain practical for hospitals to participate, the audit assessed only some elements of the Australian and New Zealand Society of Blood Transfusion and Royal College of Nursing Australia 2004, *Guidelines for the Administration of Blood Components*. The report has an additional section not contained in the 2005 report; it maps the audit questions to the guidelines to assist health services to become more familiar with the guidelines.

The audit was ambitious, with the aim of recruiting every hospital in Victoria that transfuses blood products. Audit proforma were sent to 146 hospitals and health services. Policy and procedure audit responses were received from 75 organisations (51 per cent of invitees); with 64 of these health services submitting prospective administration audit data on 1278 transfusion episodes. An additional two organisations provided practice audit data, with no corresponding protocol audit (31 transfusion episodes).

Comparison between the 2005 and 2007 year audits is given in sections 3.1 to 3.4 of this report. In summary, there has been marked improvement in the quality of hospital protocols to guide transfusion practice, however improvements are still indicated. Safety in transfusion practice is only beginning to show improvement.

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

## Key lessons

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

Existing policies still 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 (95 per cent) of hospitals had written policies on transfusion practice. However 16 per cent still do not have any policy for the critical, early step transfusion process step for labeling of specimens required for pre-transfusion testing (blood group and crossmatch). Sixty-four per cent do not specify the training that should be provided to staff who take these critical samples.
2. Eleven per cent of hospitals do not have a policy requiring all patients receiving blood transfusion to wear a patient identification band (or specified alternative method). The majority of hospitals (90 per cent) required patients wherever possible, to positively identify themselves by stating their name and date of birth.
3. Only 77 per cent had a policy for correct identification of unconscious patients.
4. The audit of actual transfusion practice identified 44 transfusion events (three per cent) where wristbands were not present during transfusion, and the majority of these were outpatients: 12 per cent of all outpatient transfusions.

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

1. The majority (91 per cent) had policies and procedures mandating pre-transfusion observations, however only 83 per cent required post-transfusion observations.
2. The audit of actual transfusion practice indicated that while 96 per cent of patients had pre-transfusion observations recorded, only 88 per cent had post-transfusion observations recorded.
3. The audit of actual transfusion practice identified 27 adverse events in transfused patients. Almost a third of these (30 per cent) had no medical note, whilst only one adverse event was not recorded in the nursing notes.

### **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. Sixty-four per cent of hospitals had policies requiring staff to inform patients about the risks and benefits of receiving a blood transfusion.
2. In 24 per cent of transfusion episodes there was no 'reason for transfusion' recorded. In any follow-up of delayed adverse events, it is essential that the rationale for transfusion is assessed.

# 1. Your health service report

## Hospital protocol and practice audit – results and risk assessments

(available to organisations that submitted data to the audit)

### 1.1 Protocol results

Your hospital submitted no data for 2005 and 2007.

Survey question	True/false		Statewide percentage (%) yes (true)		Best practice
	2005	2007	2005	2007	
Does your hospital have written policies on blood transfusion practice?			94	96	All hospitals require a written policy on blood transfusion practice.
Is there a written policy on the labelling of blood samples for grouping and cross-matching?			66	84	Hospital policy should include statements on labelling of blood samples for group and cross matching that at least should include a statement on positively confirming the patient's identity at the point of collection and labelling. The minimum requirements are surname, given name, hospital unit record number or date of birth, date and time of collection plus signature or initials of the collector.
Is there a written policy on which staff can take samples for blood grouping and cross-matching?			42	69	Hospital policy should include statements on which staff are accredited to take samples for blood grouping and cross matching.
Is there a written policy on what training should be given to staff who can take samples for blood grouping and cross-matching?			14	36	Hospital policy should include statements on training and competencies for staff taking samples for grouping and cross matching.
<b>Is there a written policy that wristbands should be worn during transfusion</b>					Hospital policy should include statements on patients wearing wristbands or a specified alternate process in an emergency situation.
By all patients?			69	84	
All patients unless a specified alternative method is used?			30	57	
Is there a policy statement about the administration of blood in your hospital?			92	95	Hospital policy should include statements on blood administration.

Survey question	True/false		Statewide percentage (%) yes (true)		Best practice	
	2005	2007	2005	2007		
<b>Is there a policy statement on how the identity of the patient is verified prior to transfusion?</b>			86	93	Hospital policy should include statements on verifying patient identification prior to transfusion. Statement should include asking conscious patients for full name and date of birth in addition to checking the details on their wristbands. Statement should include checking an unconscious patient's wristband for full name, date of birth and hospital unit record number.	
<i>If yes does it contain the following for conscious patients?</i>						
Ask the patient to state forename, surname and DOB?			71	90		
Check the patient's wristband?			96	100		
<i>If yes does it contain the following for unconscious patients?</i>						
Check the patient's wristband for forename and surname?			61	77		
Check the patient's wristband for DOB and hospital number?			58	77		
<b>Is there a policy statement that pre-transfusion observations should be made?</b>			88	91		Hospital policy should include statement of pre- and post-observation transfusions. Transfusion observations should include pulse, temperature, blood pressure and respiration.
<i>If yes does it contain the following?</i>						
(1) Pulse			94	100		
(2) Temperature			94	100		
(3) Blood Pressure			94	99		
(4) Respirations			91	100		
<b>Is there a policy statement that post-transfusion observations should be made</b>			67	83		
<i>If yes does it contain the following?</i>						
(1) Pulse			97	98		
(2) Temperature			97	98		
(3) Blood Pressure			97	98		
(4) Respirations			93	98		
<b>Is there a policy statement that specifies what to do in the event of a transfusion reaction?</b>			90	93	Hospital policy should include statement on adverse reactions. Statement should include stopping transfusion, contacting the blood provider and seeking advice from medical staff.	
<i>If yes does it include the following?</i>						
(1) Stop transfusion			99	99		
(2) Contact blood bank (Laboratory or supplier)			89	97		
(3) Seek advice from medical staff			97	99		
<b>Does the written policy state that hospital staff routinely give information to patients about blood transfusions before the blood transfusion?</b>			36	64	Hospital policy should include statement on giving information to patients about blood transfusion before the transfusion takes place.	

## 1.2 Practice results

### Patients in audit

2005: Your hospital submitted no data / 2007: Your hospital submitted no data

	Total at risk		Percentage (%) at best practice		Statewide percentage (%) at best practice	
	2005	2007	2005	2007	2005	2007
1. Is the patient an in-patient?	NA	NA	NA	NA	NA	NA
2. Is the patient having the transfusion in an area that is not secluded, where the patient can easily be visually monitored by staff throughout the transfusion episode?					88	87
3a. Is the patient conscious?					94	95
3b. If conscious, were they asked to confirm their identification details?	Not in 2005 audit		Not in 2005 audit		NA	85
<b>4. Identification wristband</b>						
a) Is the patient wearing an identification wristband?					93	97
b) If yes, does the wristband contain the patient's surname?					99	100
c) If yes, does the wristband contain the patient's first name?					98	100
d) If yes, does the wristband contain the patient's gender?					70	74
e) If yes, does the wristband contain the patient's date of birth?					88	92
f) If yes, does the wristband contain the patient hospital identification number?					97	99
g) If no to any of the above, did the patient come in as an unknown patient via the accident and emergency department? (Number of unknown patients)	NA	NA	NA	NA	NA	NA
h) Does the identity of the patient wristband match with the compatibility report and the blood being transfused?					98	98
<b>5. Concerning the actual unit being transfused at the time of the audit</b>						
a) Is the compatibility report or the prescription sheet signed by the person administering the blood?					99	99

	Total at risk		Percentage (%) at best practice		Statewide percentage (%) at best practice	
	2005	2007	2005	2007	2005	2007
b) Is the date of the transfusion recorded on the compatibility report or the prescription sheet?					98	98
c) Has the commencement time of the unit been recorded on the documentation of the patient transfusion observations?					93	94
d) Has the stop time of the unit been recorded on the documentation of the patient transfusion observations?					76	71
<b>6. Considering the unit currently being transfused</b>						
a) What time did the unit commence					98	97
b) Was a pre-transfusion blood pressure (BP) recorded?					96	96
c) Was a pre-transfusion pulse recorded?					97	96
d) Was a pre-transfusion temperature recorded?					95	96
e) Was a pre-transfusion respiration rate recorded?					92	93
f) Was a post-transfusion blood pressure recorded?					86	88
g) Was a post-transfusion pulse recorded?					85	88
h) Was a post-transfusion temperature recorded?					87	87
i) Was a post-transfusion respiration rate recorded?					84	85
<b>7. Transfusion indication</b>						
Is there a clear statement in the medical notes giving the reason for the transfusion?					78	77
<b>8. Adverse transfusion event</b>						
a) Is there any record of the patient having had an adverse effect due to the transfusion?	NA	NA	NA	NA	NA	NA
b) If a transfusion adverse event has occurred is it recorded in the medical notes?					73	70
c) If a transfusion adverse event has occurred is it recorded in the nursing notes?					82	93
d) If a transfusion adverse event has occurred, was it reported to pathology and/or the supplier?					NA	44

The following audit questions do not fit above, as they are not considered as a risk alone:

	Total at risk		Percentage (%) at best practice		Statewide percentage (%) at best practice	
	2005	2007	2005	2007	2005	2007
1. Is the patient an in-patient?					82	82
<b>4. Identification band</b>						
g) If no to any of the above, did the patient come in as an unknown patient via the accident and emergency department? (Number of unknown patients)					2	1
<b>8. Adverse transfusion event</b>						
a) Is there any record of the patient having had an adverse effect due to the transfusion?					2	2

### 1.3 Protocol risk assessment

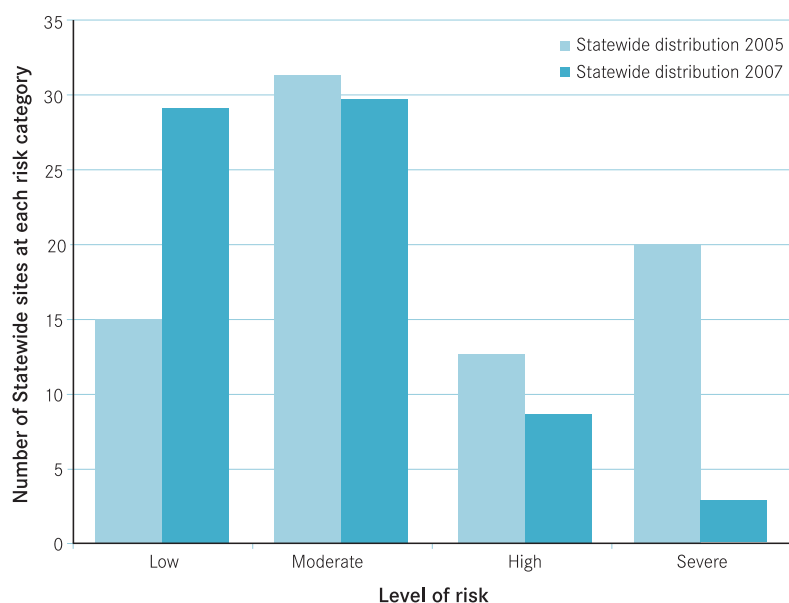
Your hospital submitted no data

**Table 1.1: Aggregate risk**

Results	Your hospital		Statewide	
	2005	2007	2005	2007
<b>Risk in patient identification policy</b> (Max value 4)			1	0
<b>Risk in identification of blood sample</b> (Max value 1)			0	0
<b>Risk in identification of unconscious</b> (Max value 1)			1	0
<b>Risk in identification of unknown patients</b> (Max value 1)			1	0
<b>Risk in pre transfusion observation</b> (Max value 4)			1	0
<b>Risk in post transfusion observation</b> (Max value 4)			1	1
<b>Aggregate risk</b> (Max value 15)			4	2

Aggregate risk: provides details of the risk at each policy step and provides a total risk score.

**Chart 1.1: Protocol risk assessment**



**Key**

Level of risk	
Risk level	Aggregate risk value
Low risk	0
Moderate risk	1-3
High risk	4-6
Severe risk	7-15

**Table 1.2: Cumulative risk**

Your hospital submitted no data for 2005 and 2007.

Results	Your hospital		Statewide	
	2005	2007	2005	2007
Patient identification policy risk			25.7 %	18.2 %
Product identification policy risk			11.4 %	5.3 %
Undetected adverse events policy risk			12.5 %	5.3 %
Percentage of transfusion policy with increased risk			49.6 %	28.9 %

Cumulative risk: is provided as a proportion of three important policy areas, to show for example, whether the risk increases in a particular section of the policy or whether there is a low grade risk through the policy.

## 1.4 Practice risk assessment

### Patients in audit

2005: Your hospital submitted no data / 2007: Your hospital submitted no data

**Table 1.3: Practice risks**

	Total at risk		Percentage (%) at best practice standards		Best practice descriptor
	2005	2007	2005	2007	
Risk from non-continuous monitoring					Patients must be visually monitored by staff during the transfusion episode to reduce the risk of delay in detecting adverse transfusion reaction.
Patients not recorded as conscious					An unconscious patient must have their identity verified by use of wristbands with all elements of identification* <b>and</b> be continuously monitored during the transfusion process <b>and</b> have complete documentation.
Patients listed as unknown					An unknown patient from emergency department <b>must</b> be clearly identified by use of wristbands containing at an absolute minimum the hospital unit record number.
Incomplete or no wristbands					A wristband must contain all the following elements – family name, first name, date of birth and hospital identification number*.
Matching product to person					Product details must match the information on a patient's wristband <b>and</b> the compatibility report and/or prescription sheet signed by the person administering the blood.
Transfusion documentation incomplete					Transfusion documentation must contain transfusion date and time, transfusion reason and transfusion stop time.
Conflicting documentation in adverse drug reaction					In the event of an adverse reaction to transfusion the details must be fully documented in both medical and nursing notes†.
Incomplete pre-transfusion documentation					Pre-transfusion observations must include blood pressure, pulse, temperature and respiration.
Incomplete post transfusion documentation					Post-transfusion observations must include blood pressure, pulse, temperature and respiration.

\*Note. Information on wristbands: family name, first name, date of birth and hospital identification number must be included at a minimum, and gender preferably. The Guidelines for the Administration of Blood Components states that all patients shall have an identification band, which includes gender; however, the guidelines do not state that it should be checked (as is the case for first name, surname, and date of birth). Calculations of transfusion events at best practice standards, in the above table, do not include gender.

† In the 2005 report, the variable was "the patient was unconscious" was included as a risk; however, in this report it was excluded since the hospital cannot control this element. All data was rerun.

Chart 1.2: Practice risk comparison

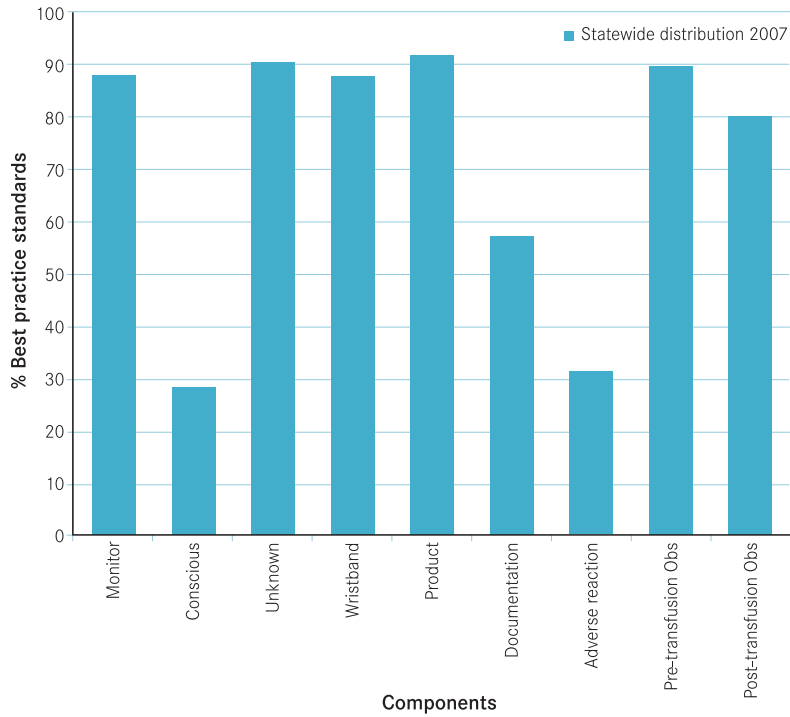
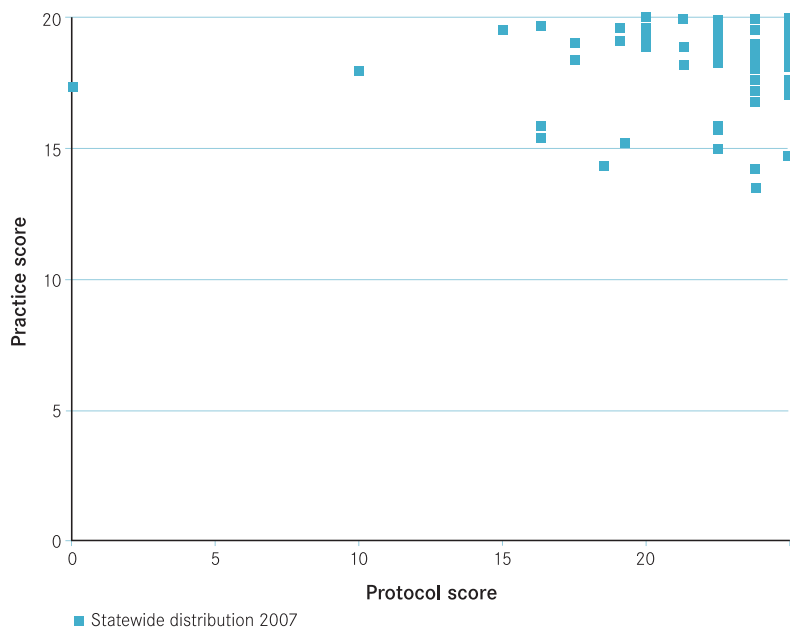


Chart 1.3: Protocol-practice matrix



## 2. Background and methodology

In September 2007, the Blood Matters Program commenced a statewide audit of aspects of clinical transfusion practice at selected public and private hospitals across Victoria and Tasmania.

This audit compared blood transfusion protocols and practices across 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 proforma for the audit of the hospital protocols was unchanged from the audit conducted in 2005.

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.

The proforma for the audit of blood product administration practice included two additional questions compared to the prior audit. These questions were:

3b) If conscious, were they asked to confirm their identification details (last name, first name and date of birth)?; and

8d) If a transfusion adverse event has occurred, was it reported to pathology and/or the supplier?

Data submission of the audits was via e-Forms, an electronic internet-based process. The e-Forms were developed to ensure that answers to specific questions were mandatory to reduce the amount of missing data.

Some data was submitted manually by the hospitals due to unexpected technical limitations of the e-Forms, apparent only at some sites.

The e-Form data was imported into a custom-built Microsoft Access database.

The results derived from the two audit tools are reported separately. The report also provides a matrix showing the relationship between having a policy in place and the impact on practice.

### **Limitations**

This data has been collected by auditors who were provided with audit instructions (see Appendix for details) and whom were not specifically trained. Whilst the audit tools are not complex, it means that there may be some collection variation between sites and across years. Each hospital should interpret their own data in accordance with the auditor practice at their sites.

## 3. Statewide report (cumulative results)

### 3.1 Results

#### 3.1.1 Hospital transfusion protocol audit

A total of 77 hospitals responded to the request for information regarding local policy and/or procedures governing blood product transfusion (52 per cent return rate). There were 58 responses from public hospitals (64 per cent return rate) and 19 responses from private hospitals (33 per cent return rate). A policy proforma was submitted by 75 hospitals, practice data was submitted by 66 hospitals with 64 hospitals submitting both policy and practice data. Four hospitals reported that no practice data was submitted, as no transfusions occurred during the audit period; two hospitals do not provide a transfusion service; one hospital attempted to submit data electronically but it did not process; and it was unable to be determined in four hospitals why no practice data submitted.

Overall 96 per cent of hospitals indicated that they had established some hospital-wide transfusion protocols (95 per cent of public hospitals and 100 per cent of private hospitals). Three hospitals reported having no formal transfusion protocols at the time of the audit. Two of these hospitals reported not providing a transfusion service, and the remaining hospital reported having a transfusion policy in draft form only.

#### Labelling and cross-matching for transfusion

The number of hospitals that had protocols that encompassed the requirements for labelling blood samples for 'group and cross match' increased from 66 per cent in 2005 to 84 per cent in 2007.

Sixty-nine per cent of hospitals had protocols governing the categories of staff authorised to draw blood samples for 'group and cross match'. Only a few hospitals (36 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 (95 per cent) had a protocol governing the administration of blood.

#### Patient identification protocols

Eighty-nine per cent of hospitals (see Note 1 in Table 3.1) had protocols detailing the requirement to have patient identification wristbands on all patients during transfusion (with more private hospitals: 94 per cent) than public hospitals (88 per cent) providing an affirmative response to this audit element). This was an improvement from the 2005 audit, when only 70 per cent of hospitals had such protocols.

Only seven per cent of hospitals did not specifically address mechanisms for patient identification within their transfusion protocols. Four hospitals reported that no policy was in place requiring all patients to wear wristbands during transfusion, but did report there was a policy statement on verifying the patient's identity prior to transfusion, including checking wristbands.

Most hospitals (93 per cent) reported having some formal processes to verify identity prior to transfusion in local transfusion protocols. In conscious patients, 100 per cent of those with

such transfusion protocols used a patient identification wristband as the primary source of patient identity verification. Ninety per cent of hospitals require a patient to affirm their identity by stating their name and date of birth. In unconscious patients, 77 per cent required checking the patients' wristband for name; the same 77 per cent also required checking the patients' wristband for date of birth and hospital number.

#### **Pre- and post-transfusion observations protocols**

Most hospitals (91 per cent) had protocols mandating pre-transfusion observations. Most of these protocols (67 of 68) required the recording of pulse, temperature, blood pressure, and respiration rate prior to transfusion. One hospital did not report the requirement for blood pressure observations.

Relatively fewer hospitals mandated post-transfusion observations in their transfusion protocols. Only 83 per cent of hospitals (n=62) reported that post-transfusion observations were required by hospital transfusion protocols, with 61 of these 62 hospitals mandating recording of pulse, temperature, blood pressure, and respiration in these protocols.

#### **Transfusion reaction reporting protocols**

Most hospitals (93 per cent, n=70) had protocols regarding the action required in the event of a transfusion reaction. All hospitals included stopping the transfusion, with the majority also requiring medical staff be contacted (69 of 70) and the hospital blood bank notified (68 of 70).

#### **Protocols for provision information to transfused patients**

Almost two thirds of respondent hospitals (64 per cent) had transfusion protocols that require staff to inform patients about any aspect of blood transfusion. The percentage of hospitals requiring informing patients doubled from the most recent audit in 2005 (36 per cent). More public hospitals (72 per cent) reported such requirements in transfusion protocols compared to private hospitals (38 per cent).

Table 3.1: Results of the protocol audit

Survey question	Percentage (%) responding yes		Best practice
	2005	2007	
Number of hospitals responding	N=88	N=75	
Does your hospital have written policies on blood transfusion practice?	94	96	All hospitals require a written policy on blood transfusion practice.
Is there a written policy on the labelling of blood samples for grouping and cross-matching?	66	84	Hospital policy should include statements on labelling of blood samples for group and cross matching that at least should include a statement on positively confirming the patient's identity at the point of collection and labelling. The minimum requirements are full name, hospital unit record number or date of birth, date and time of collection plus signature or initials of the collector.
Is there a written policy on which staff can take samples for blood grouping and cross-matching?	42	69	Hospital policy should include statements on which staff are accredited to take samples for blood grouping and cross matching.
Is there a written policy on what training should be given to staff who can take samples for blood grouping and cross-matching?	14	36	Hospital policy should include statements on training and competencies for staff taking samples for grouping and cross matching.
<b>Is there a written policy that wristbands should be worn during transfusion?</b> <sup>Note 1</sup>			
By all patients?	69	84	Hospital policy should include statements on patients wearing wristbands or a specified alternate process in an emergency situation.
All patients unless a specified alternative method is used?	30	57	
Is there a policy statement about the administration of blood in your hospital?	92	95	Hospital policy should include statements on blood administration.
<b>Is there a policy statement on how the identity of the patient is verified prior to transfusion?</b>			
	86	93	Hospital policy should include statements on verifying patient identification prior to transfusion. Statement should include asking conscious patients for full name and date of birth in addition to checking the details on their wristbands. Statement should include checking an unconscious patient's wristband for full name, date of birth and hospital unit record number.
<i>*If yes does it contain the following for conscious patients?</i>			
Ask the patient to state forename, surname and DOB?	71	90	
Check the patient's wristband?	96	100	
<i>If yes does it contain the following for unconscious patients?</i>			
Check the patient's wristband for forename and surname?	61	77	
Check the patient's wristband for DOB and hospital number?	58	77	

Survey question	Percentage (%) responding yes		Best practice
	2005	2007	
<b>Is there a policy statement that pre-transfusion observations should be made?</b>			
	88	91	Hospital policy should include statement of pre- and post-observation transfusions. Transfusion observations should include pulse, temperature, blood pressure and respiration.
<i>*If yes does it contain the following?</i>			
(1) Pulse	94	100	
(2) Temperature	94	100	
(3) Blood pressure	94	99	
(4) Respirations	91	100	
<b>Is there a policy statement that post-transfusion observations should be made?</b>			
	67	83	Hospital policy should include statement of pre- and post-observation transfusions. Transfusion observations should include pulse, temperature, blood pressure and respiration.
<i>*If yes does it contain the following?</i>			
(1) Pulse	97	98	
(2) Temperature	97	98	
(3) Blood pressure	97	98	
(4) Respirations	93	98	
<b>Is there a policy statement that specifies what to do in the event of a transfusion reaction?</b>			
	90	93	Hospital policy should include statement on adverse reactions. Statement should include stopping transfusion, contacting the blood provider and seeking advice from medical staff
<i>*If yes does it include the following?</i>			
(1) Stop transfusion	99	99	
(2) Contact blood bank (Laboratory or supplier)	89	97	
(3) Seek advice from medical staff	97	99	
<b>Does the written policy state that hospital staff routinely give information to patients about blood transfusions before the blood transfusion?</b>	36	64	Hospital policy should include statement on giving information to patients about blood transfusion before the transfusion takes place

Note 1: For the question 'Is there a written policy that wristbands should be worn during transfusion?'; for ease of interpretation, the results of this two part question need to be amalgamated into one figure: those that said 'yes' to either question (89%).

\* The denominator for these questions is derived from the number of 'Yes' responses to the relevant overarching question.

### 3.1.2 Hospital transfusion practice audit

There were a total of 1,309 transfusion events in the audit data provided by 66 hospitals. Two hospitals submitting practice data did not submit a policy audit. It was not able to be determined whether those hospitals had a policy in place or not. Of the transfusion events reported, 1,068 (82 per cent) involved inpatients and 238 (18 per cent) involved outpatients. In three transfusion events (0.2 per cent) no location information was recorded.

Most transfusion events were not in secluded areas (87 per cent, n=1,138 versus 13 per cent, n=167 occurring in secluded environments). Four events (0.3 per cent) had no information recorded.

The majority of transfusion episodes audited took place between 8am and 8pm. Of the audits reporting an actual start time, five per cent took place between 8pm and midnight, and four per cent took place between midnight and 8am.

The Serious Hazards of Transfusion (SHOT) 2005 report highlighted the increased risk of overnight transfusion and found that 37 per cent of errors in which the time was reported, took place overnight between 8pm and 8am. In its 2005 report, SHOT recommended avoiding blood transfusion out of core hours. (SHOT 2005, recommendation 4).

Some overnight transfusions would be considered to be necessary and unavoidable during the overnight hours; the current audit is unable to determine if the transfusion would be considered necessary.

**Key comment 1:** nine per cent of transfusions occurred overnight in this survey.

The United Kingdom's National Comparative Audit of Overnight Red Blood Cell (January 2008) suggested that there is an increased risk of a transfusion complication not being detected when a patient is transfused overnight because there may be fewer nurses to monitor the patient and there is likely to be fewer medical and laboratory staff available to respond to the complication. Monitoring the patient at night may be more difficult than in the day time because of reduced lighting.

Nearly all transfusion events involved conscious patients (95 per cent, n=1,242 conscious, versus only 5 per cent, n=64 events involving unconscious patients). In three events no relevant information was recorded.

**Table 3.2: Results of the practice audit**

Audit element	Percentage (%) responding yes	
	2005 audit	2007 audit
1) Inpatient admission?	82	82
2) Continuous observation?	88	87
3a) Patient conscious?	94	95
3b) If conscious, asked to confirm ID	NA	85
4a) Wearing wristband?	93	97
4b) Family name?	99	100
4c) First name?	98	100
4d) Gender?	70	74
4e) Date of birth?	88	92
4f) Hospital ID number?	97	99
4g) Entry via emergency department?		
4h) Was report matched to wristband ID?	98	98
5a) Report signed by transfuser?	99	99
5b) Date of transfusion recorded	98	98
5c) Was commencement time recorded?	93	94
5d) Was completion time recorded?	76	71
6a) Actual time unit commenced	98	97
6a) Actual time unit commenced	96	96
6c) Pre-transfusion pulse?	97	96
6d) Pre-transfusion temperature?	95	96
6e) Pre-transfusion respiration?	92	93
6f) Post-transfusion blood pressure?	86	88
6g) Post-transfusion pulse?	85	88
6h) Post-transfusion temperature?	87	87
6i) Post-transfusion respiration?	84	85
7) Reason for transfusion?	78	77
8a) Percentage of all events with adverse reaction	2	2
8b) Recorded in medical notes?	73	70
8c) Recorded in nursing notes?	82	93
8d) Reported to pathology/supplier?	NA	44

### Identification wristbands

Most patients (97 per cent, n=1,265) wore identification wristbands during the transfusion episode. In a total of 44 transfusion events wristbands were either not present during transfusion (n=41) or the question was unanswered (n=3).

Of those patients not wearing wristbands the majority were outpatients (71 per cent, n=29). This means that 12 per cent (29 of 238) of all outpatient transfusions monitored in this audit were administered to patients not wearing wristband identification. In contrast only one per cent (12 of 1,068) of monitored inpatient transfusions were administered to patients not wearing wristband identification.

In the 64 unconscious transfused patients reported in this audit, two were administered to patients not wearing wristband identification.

**Key comment 2:** three 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. Most inpatients (99 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 3.3 shows the information elements recorded on wristbands.

**Table 3.3: Identification wristband elements totals**

Identification wristband	Number with details on the wristband		Percentage (%) of all wristbands	
	2005 audit	2007 audit	2005 audit	2007 audit
Surname	1,228	1,262	99	100
Family name	1,208	1,260	98	100
Gender	865	928	70	74
Date of birth	1,090	1,165	88	92
Hospital identification number	1,198	1,249	97	99
Match with compatibility report	1,207	1,232	98	98

### Administration documentation

Table 3.4 shows some individual administration steps reported as documented in the patient record.

**Table 3.4: Records of signatories, date and times of transfusion**

Administration record	Number with records		Percentage (%) of all episodes	
	2005 audit	2007 audit	2005 audit	2007 audit
Signature of person administering the blood	1,303	1,294	99	99
Date of transfusion	1,294	1,277	98	98
Commencement time of transfusion	1,219	1,219	93	94
Stop time of the transfused unit	933	911	76	71

**Key comment 3:** In most transfusion events the signature of the person administering the blood and the date and time of commencement were recorded. However, in 29 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 at least one pre-transfusion observation recorded, with only some minor variation in the scope of these recorded observations. Table 3.5a shows the individual observation elements reported on patients before transfusion.

**Table 3.5a: Pre-transfusion observations**

Pre-transfusion observations	Number		Percentage (%) of all episodes	
	2005 audit	2007 audit	2005 audit	2007 audit
Blood pressure	1,257	1,243	96	96
Pulse	1,274	1,252	97	96
Temperature	1,244	1,246	95	96
Respiration	1,202	1,207	92	93

In contrast, fewer episodes recorded post-transfusion observations. Table 3.5b gives the numbers of patients reported as having recorded post-transfusion observations

**Table 3.5b: Post-transfusion observations**

Post-transfusion observations	Number		Percentage (%) of all episodes	
	2005 audit	2007 audit	2005 audit	2007 audit
Blood pressure	1,084	1,136	86	88
Pulse	1,097	1,139	85	88
Temperature	1,065	1,126	87	87
Respiration	1,059	1,103	84	85

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 4:** While nearly all transfusion episodes are preceded by the recording of relevant vital sign observations, in 12 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 (76 per cent, 994 of 1,309) there was a 'reason for transfusion' recorded in the patient file. The rate of failure to record a reason for transfusion was similar in outpatients (25 per cent) to inpatients (24 per cent).

**Key comment 5:** 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 27 transfusion episodes that were associated with adverse outcomes in the transfused patient (2 per cent). However in nearly a third of these adversely affected patients (30 per cent, n=8) there was no notation in the medical record by their medical attendants that an adverse transfusion outcome had occurred. In contrast, there was only one adverse transfusion event that was not recorded in the nursing notes. In over one half of the adverse events, the event was not reported to Pathology and/or the supplier (56 per cent, n=15 of 27).

**Key comment 6:** The recording of adverse transfusion events is important. Medical and nursing notes must appropriately record all adverse transfusion events. Adverse transfusion events should be reported back to Pathology and/or the supplier in the event that the blood is contaminated.

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

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

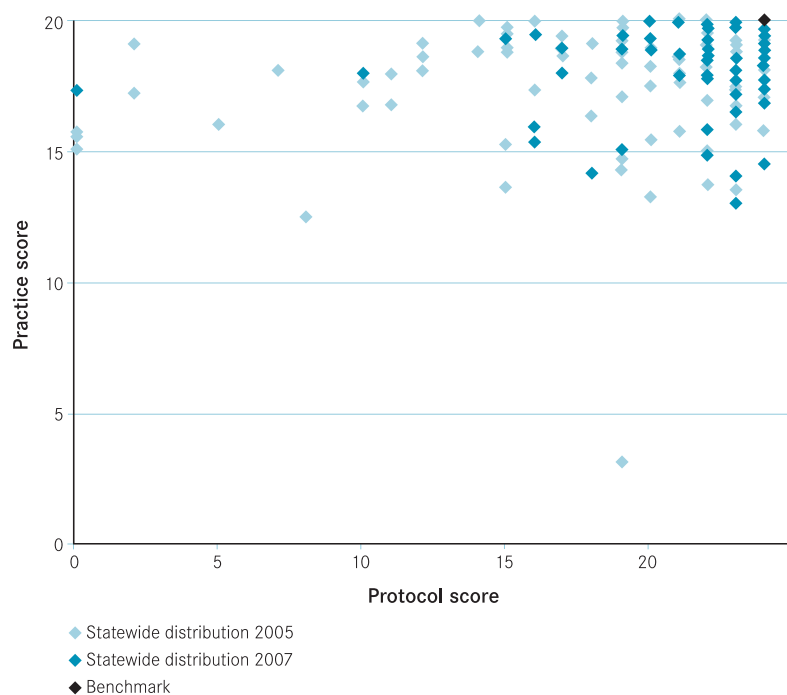
The **protocol** audit tallied all the "Yes" responses from the 'Audit of hospital-wide policy and procedure(s) for blood transfusion' audit tool, resulting in a maximum of 24. The protocol scores ranged from 0 to 24, with an average of 20.3. This was an improvement from 2005 audit where protocol scores ranged from 0 to 24, with an average of 16.8.

A **practice** score was derived from a targeted set of questions assessed on the practice audit for their "Yes" responses, resulting in a maximum of 20 (For the 2005 audit, the maximum score was 19 due to Q3b not being asked; 2005 practice scores were adjusted create a maximum score of 20). *Questions on the practice audit eliciting responses not directly aligned to transfusion protocols were not assessed* (inpatient status, transfusion setting, level of consciousness, date/time fields, adverse events entries). That is practice audit questions: Q1, Q2, Q3a, Q4d, Q6a, Q8a, Q8b, Q8c, and Q8d were excluded. The **practice** scores ranged from 12.9 to 20, with an average of 18.1. This was an improvement from 2005 audit where practice scores ranged from 3 to 20, with an average of 17.2.

The policy and practice results for each hospital are displayed in matrix form as shown in Graph 3.1 below, with both protocol and practice scores presented as independent factors (further explanation provided beneath Graph 3.1). The matrix shows a positive shift of hospitals towards the upper right quadrant, showing improved written protocols and practice.

In 2007, three hospitals attained the benchmark of achieving the full score for protocol and practice. These hospitals were all considered to be small non-acute hospitals, one being private and the other two public. In 2005, no hospital reached the benchmark.

**Graph 3.1: Protocol-practice matrix for blood transfusion at sites, 2005 and 2007**



*\*NOTE about modifications to the 2007 matrix presentation that are different to the 2005 report presentation: the graph has been modified so that in 2007 both the practice and protocol scores are independent factors, whereas in the 2005 report the protocol was independent and the practice score was dependent. The 2005 data has been re-plotted in this report to be the same as the 2007 presentation so that comparison can be made between the two years.*

### 3.3 National guidelines for the administration of blood components

National guidelines regarding the administration of blood and blood components and the management of transfused patients were developed by the Australian & New Zealand Society of Blood Transfusion (ANZSBT) and the Royal College of Nursing Australia (RCNA) in 2004. The guidelines cover five major areas: venous access and equipment for transfusion, concurrent fluids and medications, related medical and nursing issues, administering blood and components, and management and reporting of adverse events. The issues included in the Blood Matters protocol and practice audits covered a number of these guidelines and recommendations.

#### 3.3.1 Related medical and nursing issues – Section C

##### Section C 1 – Prescription of blood components

The prescription constitutes the legal instruction to administer the blood component. The national guidelines state that the order and/or the prescription should include the date and time the transfusion is to take place, among other things.

Within the practice audit, one question refers to the above issue.

Practice Question 5b: Is the date of the transfusion recorded on the compatibility report or the prescription sheet?

The participating hospitals in the 2005 and 2007 audits maintained a high standard in meeting this standard (98 per cent in both years).

##### Section C 3 – Pre-transfusion sample collection

Experience has shown that many errors occur in documentation when labelling samples and completing forms. The national guidelines suggest that wherever possible a second person verifies that correct patient identification and recording of correct patient details have been accurately performed, on both the sample tube and request form.

##### Sample collection and labelling

The national guidelines state that following collection and before leaving the patient, the tube(s) containing the sample(s) shall be legibly labelled with:

- patient's surname, given name(s) in full, and hospital record number or date of birth.  
(For unidentified patient an alternative reliable documented method of identification shall be substituted and be reliably linked to the patient's name once available)
- date and time of collection
- the signature or initials of the collector shall appear on the sample tube, indicating that identity has been confirmed.

Within the policy audit submitted by the hospitals, one question refers to the above issue.

Policy Question 2: Is there a written policy statement on the labelling of blood samples for blood grouping and cross matching?

The participating hospitals in the 2005 and 2007 audits made a significant improvement in their individual policies. In 2007, 84 per cent of hospitals reported having a written policy regarding labelling of blood samples and cross matching, up from 66 per cent in 2005.

## Section C 4 – Care and monitoring of transfused patients

The most basic principle of patient care during transfusion is to ensure the patient's safety. The national guidelines state that patients receiving transfusions shall be monitored for signs of the potential complications of transfusion and any suspected problems dealt with swiftly and efficiently.

They recommend that a care and monitoring policy shall be in place, defining the following:

- The staff responsible for the care and monitoring of transfused patients.
- The information to be given to the patient about possible adverse effects of transfusion, and the importance of reporting immediately any adverse effects, including shivering, rashes, flushing, shortness of breath, pain in extremities or in the loins.
- The parameters for visual observation of the patient. Visual observation is often the best way of assessing patients during transfusion. Transfusions should be given in clinical areas where members of the clinical staff can readily observe patients.
- The clinical area where transfusions are given. There shall be sufficient trained and competent staff to monitor the patients.
- A clear plan of action to be followed in case of an emergency or transfusion reaction.
- Documentation of observations should clearly indicate the start and finish times of the infusion of each component.
- A protocol for maintaining a fluid balance record.

Within the policy and practice audits submitted by the hospitals, a number of questions addressed some of the recommendations above.

### Information provided to patients

Policy Question 10: Does the written policy state that hospital staff routinely give information to patients about blood transfusions before the blood transfusion?

The participating hospitals in the 2005 and 2007 audits made a vast improvement in their individual policies. In 2007, 64 per cent of hospitals reported having a written policy regarding providing information to patients about blood transfusions, up from only 36 per cent in 2005.

In addition, under section C2, the national guidelines recommend that the patient provides consent for the transfusion. This consent could be documented by a consent form or by documenting the discussed information in the patient's case notes. The Blood Matters audit did not address this criteria.

### Visual observation of the patient

Practice Question 2: Is the patient having the transfusion in an area that is not secluded, where the patient can be visually monitored by staff throughout the transfusion episode?

The participating hospitals in the 2005 and 2007 audits made no change in the percentage of patients who were transfused in an area that is not secluded (88 per cent versus 87 per cent, respectively).

## Observation and monitoring of transfusions

Practice Question 5c: Has the commencement time of the unit been recorded on the documentation of the patient transfusion observations?

Practice Question 5d: Has the stop time of the unit been recorded on the documentation of the patient transfusion observations?

Documenting the start and stop time of the transfusion facilitates observation of subsequent vital signs. The risk associated with not having start and stop times recorded is that it may be difficult to ascertain a timeline if an adverse transfusion reaction occurs. The participating hospitals in the 2005 and 2007 audits made no change in the percentage of patients who had a commencement time recorded (93 per cent versus 94 per cent, respectively). The rate of commencement time documentation is high and commendable, however, the rate of stop time being recorded is much lower, and also decreased from 2005 to 2007 (76 per cent versus 71 per cent, respectively).

The national guidelines state that vital signs (temperature, pulse, respirations, and blood pressure) shall be measured and recorded before the start of each unit of blood or blood component, and at the end of each transfusion episode.

Policy Question 8a: Is there a policy statement that pre-transfusion observations should be made?

If YES does it include:

- i. Pulse
- ii. Temperature
- iii. BP
- iv. Respirations

Practice Question 6: Considering the unit currently being transfused:

- 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 rate recorded?

The participating hospitals in the 2005 and 2007 audits made a small improvement by including a policy statement that pre-transfusion observations should be made (88 per cent versus 91 per cent, respectively). In regard to the specifics, the percentage of hospitals including statements of type of pre-transfusion observations increased substantially from 2005 to 2007. Practice across the participating hospitals saw little change in the documentation of pre-transfusion observations.

**Table 3.6: Percentage of hospitals reporting a policy statement for pre-transfusion observations and the corresponding practice, 2005 and 2007**

	Policy		Practice	
	2005	2007	2005	2007
<b>Pre-transfusion observations</b>				
Pulse	84	93	97	96
Temperature	84	93	95	96
Blood pressure	82	89	96	96
Respirations	82	93	92	93

Policy Question 8b: Is there a policy statement that post-transfusion observations should be made?

If YES does it include:

- i. Pulse
- ii. Temperature
- iii. BP
- iv. Respirations

Practice Question 6: Considering the unit currently being transfused:

- f) Was a post-transfusion blood pressure recorded?
- g) Was a post-transfusion pulse recorded?
- h) Was a post-transfusion temperature recorded?
- i) Was a post-transfusion respiration rate recorded?

The participating hospitals in the 2005 and 2007 audits made an improvement by including a policy statement that post-transfusion observations should be made (67 per cent versus 83 per cent, respectively). In regard to the specifics, the percentage of hospitals including statements of type of post-transfusion observations increased substantially from 2005 to 2007. Practice across the participating hospitals saw little change in the documentation of post-transfusion observations.

**Table 3.7: Percentage of hospitals reporting a policy statement for post-transfusion observations and the corresponding practice, 2005 and 2007**

	Policy		Practice	
	2005	2007	2005	2007
<b>Post-transfusion observations</b>				
Pulse	65	84	85	88
Temperature	65	84	87	87
Blood pressure	65	84	86	88
Respirations	63	84	84	85

Pre-transfusion observations are important to provide baseline information, indicating patient fitness for transfusion and to assist in observing any changes during and post transfusion. The risk of not having pre- and post-transfusion observations is that variations and early recognition of a change in the patient's condition may be missed.

## Section C 5 – Documentation of transfusions

Complete documentation of transfusions is essential so that the cause of serious adverse effects can be adequately investigated. It also facilitates auditing of all aspects of the transfusion process.

The guidelines recommend that a permanent record of the transfusion of blood and blood components and the administration of blood components shall be kept in the patient's case file, including, but not limited to, the transfusion shall be documented by medical and nursing staff and include the indication for the use of blood or blood components, the outcome of the transfusion including whether or not it achieved the desired effect, and the occurrence and management of any adverse effects.

Practice Question 7: Is there a clear statement in the medical notes giving the reason for the transfusion?

Practice Question 8a: Is there any record of the patient having had an adverse effect due to the transfusion?

There was little change in the practice of documenting a clear statement in the medical notes giving the reason for the transfusion (78 per cent and 77 per cent). It is important to provide evidence that the decision to transfuse was clinically appropriate. Hospitals need to be aware that blood should not be transfused unnecessarily; inappropriate transfusions could increase the risk to the patient, increase treatment costs, and may affect supply.

## Section C 6 – Training

To be effective, local blood transfusion guidelines must reach the staff groups for whom they are intended. Consequently, the national guidelines recommend that one identifiable member of staff should be responsible for coordinating local policies for blood transfusion, and ensuring that staff involved in blood transfusion receive adequate training. This process should be subject to regular quality assurance audits, and competency assessment.

Policy Question 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?

The participating hospitals in the 2005 and 2007 audits made an improvement in their individual policies; however, there is still much room for improvement. In 2007, 36 per cent of hospitals reported having a written policy regarding which staff can take samples for blood grouping and cross-matching, up from only 14 per cent in 2005.

## Section C 7 – Staff responsible for blood transfusions and handling of components

Many groups of staff are involved in one or more aspects of blood transfusion. Some procedures are specific to one staff group, but many can be carried out by more than one. The national guidelines recommend that hospital policies should define the responsibilities of each staff group and competency requirements.

Policy Question 3: Is there a written policy statement on which staff can take samples for blood grouping and cross-matching?

The participating hospitals in the 2005 and 2007 audits made an improvement in their individual policies. In 2007, 69 per cent of hospitals reported having a written policy regarding which staff can take samples for blood grouping and cross-matching, up from only 42 per cent in 2005.

### 3.3.2 Administering blood and components – section D

#### Section D 4 – Identity check of patient and component

##### Bedside check

The bedside check is a vital step in preventing transfusion error. National guidelines recommend that the bedside check shall include, but not limited to, the patient being positively identified by asking the patient to state their surname, first name and date of birth (whenever possible) and make sure that the surname and first name are the same as on the patient's identity bracelet, in order to ensure that the right blood is given to the right patient. Special care should be taken for those patients who cannot state their name for whatever reason.

Policy Question 7: Is there a policy statement on how the identity of the patient is verified prior to transfusion?

- a) If YES does it contain the following for conscious patients
- i) Ask the patients to state forename and surname and DOB?
  - ii) Check the patient's wristband?

Practice Question 3b: If conscious, were they asked to confirm their identification details (last name, first name and date of birth)?

The participating hospitals in the 2005 and 2007 audits made a small improvement in their individual policies. In 2007, 93 per cent of hospitals reported having a written statement regarding how the patient's identity is verified prior to transfusion, up from 86 per cent in 2005. Of hospitals participating in 2007, 85 per cent specifically required that conscious patients were asked to state their first name, surname and date of birth, up from 61 per cent in 2005. Further, 95 per cent of hospitals in 2007 stated that the patient's wristband should be checked, up from 82 per cent in 2005.

In practice, 85 per cent of conscious patients were asked to confirm their identification, in the 2007 audit. This question was not asked in the 2005 audit.

##### Identification band

The national guidelines state that all patients having a blood transfusion shall have an identification band attached, that includes the patient's surname, first name, gender, date of birth and patient identification number. Exceptions to this rule (emergency retrieval/neonate/day stay outpatients) shall ensure a method of positively identifying the patient. Where an emergency number has been allocated to an 'unknown' patient the identity of that patient shall be confirmed to the transfusion service provider as soon as this is known.

It is important for all patients undergoing transfusion to wear an identification band so that their identity can be confirmed prior to the blood being transfused. The risk associated with patients not wearing identification bands is that the patient could easily be misidentified, increasing the risk

of ABO-incompatibility. The identification band should include surname, first name, gender, date of birth, and patient hospital identification number. Including all of the above items provides the means of matching the patient's details with those on the unit pack. The risk associated with not requiring patients to wear identification bands with sufficient identifiable information is that patients could easily be misidentified.

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

- a) All patients
- 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)

Practice Question 4:

- 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?

The participating hospitals in the 2005 and 2007 audits made an improvement in their individual policies regarding the wearing of wristbands during transfusions. In 2007, 89 per cent of hospitals reported having either a written statement that all patients should wear wristbands during transfusions or all patients should wear wristbands unless a specified alternative method is used, up from 70 per cent in 2005.

The practice of patients wearing wristbands was high with 97 per cent of patients found to be wearing identification, up from 93 per cent in 2005. For patients wearing wristbands, compliance with national guidelines to include family name, first name, date of birth, and hospital identification number was high in 2007, up slightly from 2005. The inclusion of gender on the wristband continues to be low (74 per cent in 2007).

**Table 3.8: Percentage of hospitals reporting wristband elements present when a wristband is attached, 2005 and 2007**

Wristband elements	2005	2007
Surname	99	100
First name	98	100
Gender	70	74
Date of birth	88	92
Hospital identification number	97	99

Further, the national guidelines require that the following details (surname, first name, date of birth, patient identification number) be checked and found to be identical on:

- the patient's identification band
- the compatibility label attached to the blood component
- the prescription
- the blood transfusion compatibility report form; (where used).

Practice Question 4h: Does the identity of the patient wristband match with the compatibility report and the blood being transfused?

The participating hospitals in the 2005 and 2007 audits had a high compliance with the above practice (98 per cent for each year).

### 3.3.3 Management and reporting of adverse events – Section E

The national guidelines recommend hospitals have a policy for the management and reporting of adverse events following transfusions of blood and blood components, and recommend that it include the following:

- the staff responsible for this procedure
- the education, training and competency of these staff
- documentation procedures.

Policy Question 9: Is there a policy statement that specifies what to do in the event of a transfusion reaction?

The participating hospitals in the 2005 and 2007 audits had a good compliance with 93 per cent and 90 per cent, respectively, reporting a policy statement that specifies what to do in the event of a transfusion reaction.

The national guidelines also outline that if a severe reaction is suspected:

- the transfusion shall be stopped and urgent medical advice sought

Policy Question 9i: Stop transfusion

Policy Question 9iii: Seek advice from medical staff

The participating hospitals in the 2005 and 2007 audits had a high compliance, with 99 per cent in each year, reporting that when a policy statement exists, it also states the requirement of stopping of the transfusion. There was similar high compliance with the recommendation that a policy include that urgent medical advice be sought (97 per cent and 99 per cent, in 2005 and 2007, respectively).

- the reaction shall also be reported immediately to the transfusion service provider.

Policy Question 9ii: Contact blood bank (Transfusion laboratory or supplier)

Practice Question 8d: If a transfusion adverse event has occurred, was it reported to pathology and/or the supplier?

In 2007, 97 per cent of participating hospitals reported a policy statement that required the blood bank (or supplier) be alerted to an adverse transfusion reaction, up from 89 per cent in 2005. In practice, only 44 per cent of actual adverse events were reported to pathology and/or the supplier in 2007. This question was not asked in the 2005 audit.

- nursing observations should be carried out at regular intervals.

Practice Question 8c: If a transfusion adverse event has occurred is it recorded in the nursing notes?

Participating hospitals in 2007 had a high compliance with 93 per cent of adverse reactions recorded in the nursing notes.

- document all observations and actions in the patient's case notes.

Practice Question 8b: If a transfusion adverse event has occurred is it recorded in the medical notes?

Participating hospitals in 2007 had a compliance of 70 per cent of adverse reactions recorded in the medical notes.

## 3.4 Discussion

### 3.4.1 Hospital protocols

Hospital protocols showed improvement in key elements which were reported to be lacking in the previous 2005 audit. In particular, protocol elements on labelling blood samples (66 per cent to 84 per cent), reference to training of staff groups and credentialling to draw samples for 'group and crossmatch' for blood transfusion (14 per cent to 36 per cent), and provision of transfusion information to patients (36 per cent to 64 per cent) all showed commendable effort by the participating hospitals.

**Key comment:** Without a policy on training and credentialling of staff to take blood samples for "group and crossmatch" and a policy on 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.

Eighty-nine per cent of hospital protocols specifically require patient wristbands be worn during transfusion. Although, 93 per cent of hospitals stipulated the 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, however, 19 per cent of hospitals failed to mandate the recording of observations during and after transfusion. This was an improvement on 2005 results, which showed 35 per cent of hospitals did not mandate the recording of observations during and after transfusion.

**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.**

Still relatively few hospitals (64 per cent) 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 and is considered best practice. 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.

Whilst there are specific areas for improvement outstanding, the risk scores summarise the overall improvement in the quality of protocols that guide better, safer transfusion. Aggregate risk has been reduced by 50 per cent (4 to 2 risk points). Cumulative risk has also been reduced overall, from 50 per cent to 29 per cent.

### 3.4.2 Hospital practice audit

Although most inpatients wore wristbands during blood transfusion, outpatients were much less likely to do so, with 12 per cent of outpatients reported as not wearing wristbands during transfusion, compared to only one per cent of inpatients not wearing wristbands.

In the United Kingdom's *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.

<sup>2</sup> *National Blood Service and The Royal College of Physicians 2003, National Comparative Audit of Blood Transfusion: Comparative Report for Blood Transfusion in England.*

Fewer patients had post-transfusion observations recorded than pre-transfusion observations. Also, a third of transfusions did not include a record of the stop time for the transfused unit. It is possible 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. Stop times are also important for accurate identification of transfusion reactions.

Only 77 per cent of transfusion events had a written record of the reason for transfusion in either the medical or nursing notes. In 2005, it was reported that there was a disproportionate likelihood of this information not being recorded in transfused outpatients (34 per cent versus 22 per cent). Results of the 2007 audit, shows that this difference between outpatient and inpatient reporting has been reduced (25 per cent versus 23 per cent, respectively).

There were relatively few adverse events detected by the practice audit (two per cent in years 2005 and 2007). 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, and consequently not reported in this audit.

#### **Practice and protocol linkages and observed outcomes**

There was evidence of a positive shift in the protocols audited by the hospitals in 2007. The shift seen in improved practice was also noticeable but not as great. It would be expected that a change in policy would require some time to translate into practice. It is important for hospitals to not only make improvements in protocols, but must also follow through by providing adequate training to those staff responsible for transfusing patients.

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

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

## Appendix 1

Audit information sheets

Audit form for protocol

Audit forms for practice

## 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 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.

For a copy of the 'Guidelines for the Administration of Blood Components (ANZSBT/RCNA), please refer to the website: <http://www.health.vic.gov.au/best/tools/guidelines.htm>

## 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
- 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' (see next page).

### Time frame:

Either 30 random transfusion episodes or all transfusion episodes from **10 September to 10 December 2007**.

A designated member of Hospital staff will undertake data collection and submit the data via the BeST website.

The BeST secretariat will co-ordinate the audit, taking responsibility for the distribution of audit collection tools 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.

## 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.
- Return date for audit data is **14 December 2007**.

Data is to be entered **electronically** via the Better Safer Transfusion Program website 'electronic form' located at <http://www.health.vic.gov.au/best/audit.htm>. This electronic form will be available for use from mid October 2007.

For hospitals that do not have access to the internet, completed forms can be posted to the Better Safer Transfusion program at:

**Better Safer Transfusion Program**

**Quality and Safety Branch**

**Department of Human Services**

**GPO Box 4057**

**Melbourne 3001**

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

- Ms Karen Botting, Project Officer – BeST on Tel: 03 9093 9037  
or email: [karen.botting@dhs.vic.gov.au](mailto:karen.botting@dhs.vic.gov.au)
- Ms Lisa Stevenson, Transfusion Nurse – BeST on Tel: 03 9096 0476  
or email: [lisa.stevenson@dhs.vic.gov.au](mailto:lisa.stevenson@dhs.vic.gov.au)

## Better Safer Transfusion (BeST) Program – Victoria

### 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)].

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 electronically via the BeST website at [www.health.vic.gov.au/best/audit.htm](http://www.health.vic.gov.au/best/audit.htm).

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 **yes** does it contain the following for *conscious* patients?

i) Ask the patients to state forename and surname and DOB Yes No

ii) Check the patient's wristband? Yes No

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

<b>8. a)</b> Is there a policy statement that pre-transfusion observations should be made?	Yes	No
If <b>yes</b> does it include:		
i) Pulse	Yes	No
ii) Temperature	Yes	No
iii) BP	Yes	No
iv) Respirations	Yes	No
<b>8. b)</b> Is there a policy statement that post-transfusion observations should be made?	Yes	No
If <b>yes</b> does it include:		
i) Pulse	Yes	No
ii) Temperature	Yes	No
iii) BP	Yes	No
iv) Respirations	Yes	No
<b>9.</b> Is there a policy statement that specifies what to do in the event of a transfusion reaction?	Yes	No
If <b>yes</b> 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
<b>10.</b> 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 electronically via the Better Safer Transfusion website at [www.health.vic.gov.au/best](http://www.health.vic.gov.au/best).

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

- Karen Botting, BeST Project Officer on Tel 03 9096 9037  
or email: [karen.botting@dhs.vic.gov.au](mailto:karen.botting@dhs.vic.gov.au)
- or Lisa Stevenson, BeST Transfusion Nurse on Tel 03 9096 0476  
or email: [lisa.stevenson@dhs.vic.gov.au](mailto:lisa.stevenson@dhs.vic.gov.au)









## 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. Private hospitals are not included in the below tables, as this data is not published through the Australian Institute of Health and Welfare.

**Table A2-1: Events by hospital classification**

Classification	Number of hospitals	Average events/hospital	Range
Specialist and major referral	17	26	5-31
Large hospitals	7	24	18-30
Medium hospitals	11	20	6-31
Small acute	8	10	1-23
Small non acute*	6	4	2-8

\*Includes small non acute, multipurpose and other unpeered hospitals.

### Pre-transfusion observation by hospital classification

**Table A2-2: Completed pre-transfusion observations as a percentage of all events for each hospital classification**

Classification	Blood pressure (%)	Pulse (%)	Temperature (%)	Respiration (%)
Specialist and major referral	93.5	96.0	94.9	91.3
Large hospitals	91.5	91.5	90.3	89.7
Medium hospitals	98.2	97.7	98.2	95.9
Small acute	93.9	95.1	95.1	92.7
Small non acute*	100.0	100.0	100.0	100.0

\*Includes small non acute, multipurpose and other unpeered hospitals.

### Post-transfusion observations by hospital classification

**Table A2-3: Completed post-transfusion observations as a percentage of all events for each hospital classification**

Classification	Blood pressure (%)	Pulse (%)	Temperature (%)	Respiration (%)
Specialist and major referral	86.8	88.8	87.7	84.3
Large hospitals	81.8	81.2	78.8	78.8
Medium hospitals	89.9	90.4	89.4	88.1
Small acute	90.2	90.2	90.2	87.8
Small non acute*	82.6	82.6	82.6	78.3

\*Includes small non acute, multipurpose and other unpeered hospitals.

## Summary of results for information wristbands

**Table A2-4: Identification wristbands as a percentage of all events by hospital classification**

Classification	Events	Wristband worn	Worn (%)†
Specialist and major referral	447	436	97.5
Large hospitals	165	163	98.8
Medium hospitals	218	200	91.7
Small acute	82	81	98.8
Small non acute*	23	23	100.0

†Wristband Worn % based on all transfusion episodes.

\*Includes small non acute, multipurpose and other unpeered hospitals.

**Table A2-5: Identification wristbands with surname (family name)**

Classification	No surname (%)	Surname (%)†
Specialist and major referral	0.5	99.5
Large hospitals	0	100.0
Medium hospitals	0	100.0
Small acute	0	100.0
Small non acute*	0	100.0

†Surname % based on only those who are wearing a wristband

\*Includes small non acute, multipurpose and other unpeered hospitals.

**Table A2-6: Identification wristbands with first name**

Classification	No first name (%)	First name (%)
Specialist and major referral	0.9	99.1
Large hospitals	0	100.0
Medium hospitals	0	100.0
Small acute	0	100.0
Small non acute*	0	100.0

\*Includes small non acute, multipurpose and other unpeered hospitals.

**Table A2-7: Identification wristbands with patient gender**

Classification	No gender (%)	Gender (%)
Specialist and major referral	28.9	71.1
Large hospitals	17.2	82.8
Medium hospitals	27.0	73.0
Small acute	2.5	97.5
Small non acute*	17.4	82.6

\*Includes small non acute, multipurpose and other unpeered hospitals.

**Table A2-8: Identification wristbands with patient date of birth**

Classification	No date of birth (%)	Date of birth (%)
Specialist and major referral	8.7	91.3
Large hospitals	1.2	98.8
Medium hospitals	28.0	72.0
Small acute	0.0	100.0
Small non acute*	0.0	100.0

\*Includes small non acute, multipurpose and other unpeered hospitals.

**Table A2-9: Identification wristbands with hospital identification number**

Classification	No ID number (%)	ID number (%)
Specialist and major referral	1.4	98.6
Large hospitals	0.6	99.4
Medium hospitals	2.0	98.0
Small acute	2.5	97.5
Small non acute*	13.0	87.0

\*Includes small non acute, multipurpose and other unpeered hospitals.

## Classification definitions

Information source:

Hospital classification group used were published in Australian hospital statistics 2006-07, Health services series no. 31, 30 May 2008

<http://www.aihw.gov.au/publications/hse/ahs06-07/ahs06-07-x02.xls>

[Accessed August 2008]

The definition of the classification groups are published in **The State of Our Public Hospitals, June 2007 report** as shown below

<http://www.health.gov.au/internet/main/publishing.nsf/Content/health-ahca-sooph-index07.htm>

[Accessed August 2008]

<b>Principal referral and specialist hospitals</b>	Principal referral hospitals are major city hospitals with more than 20,000 acute casemix-adjusted separations and regional hospitals with more than 16,000 acute casemix-adjusted separations per annum. Specialist hospitals are specialised acute women's and children's hospitals with more than 10,000 acute casemix-adjusted separations per annum.
<b>Large hospitals</b>	Large hospitals are major city acute hospitals treating more than 10,000 acute casemix-adjusted separations per annum, regional acute hospitals treating more than 8,000 acute casemix-adjusted separations per annum, and remote hospitals with more than 5,000 casemix-adjusted separations.
<b>Medium hospitals</b>	Medium hospitals are: <ul style="list-style-type: none"> <li>• medium acute hospitals in regional and major city areas treating between 5,000 and 10,000 acute casemix-adjusted separations per annum.</li> </ul> or <ul style="list-style-type: none"> <li>• medium acute hospitals in regional and major city areas treating between 2,000 and 5,000 acute casemix-adjusted separations per annum, and acute hospitals treating less than 2,000 casemix-adjusted separations per annum but with more than 2,000 separations per annum.</li> </ul>
<b>Small acute hospitals</b>	Small acute hospitals are: <ul style="list-style-type: none"> <li>• small regional acute hospitals (mainly small country town hospitals) treating less than 2,000 separations per annum, and with less than 40% non-acute and outlier patient days of total patient days.</li> </ul> or <ul style="list-style-type: none"> <li>• 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 annum.</li> </ul>
<b>Small non-acute hospitals and multi-purpose services</b>	Small non-acute hospitals, treating less than 2,000 separations per annum and with more than 40 per cent non-acute and outlier patient days of total patient days.
<b>Un-peered and other hospitals</b>	Prison medical services, special circumstance hospitals, major city hospitals with less than 2,000 acute casemix-adjusted separations, hospitals with less than 200 separations, etc.

## Appendix 3 – Algorithms to determine risk for individual hospital reports: policy aggregate risk, policy cumulative risk, practice risk.

Table A3-1: Aggregate risk – Algorithm to determine risk score

Report variable	Questions from policy audit included in analysis
	A risk was considered if:
<b>Risk in patient identification policy</b> (Max value 4)	Question 5a and 5b were both answered no (1) Question 7 answered no (1) Question 7a(i) answered no (1) Question 7a(ii) answered no (1)
<b>Risk in identification of blood sample</b> (Max value 1)	Question 2 answered no (1)
<b>Risk in identification of unconscious</b> (Max value 1)	Question 7b(i) and/or 7b(ii) answered no (1)
<b>Risk in identification of unknown patients</b> (Max value 1)	Question 5b answered no (1)
<b>Risk in pre transfusion observation</b> (Max value 4)	Question 8a(i) answered no (1) Question 8a(ii) answered no (1) Question 8a(iii) answered no (1) Question 8a(iv) answered no (1)
<b>Risk in post transfusion observation</b> (Max value 4)	Question 8b(i) answered no (1) Question 8b(ii) answered no (1) Question 8b(iii) answered no (1) Question 8b(iv) answered no (1)
<b>Aggregate risk</b> (Max value 15)	Sum of the above risk score

The data analysed in the prior report did not include pre-transfusion risk. For the 2007 data release it was chosen to include pre-transfusion observation as a potential risk.

The data analysed in the prior report considered answers to questions 5a and 5b as separate risks worth one point each for 'Risk in patient identification policy'. For the 2007 data release they were considered jointly reducing the maximum risk value to four points for this report variable. .

Due to the changes in the variables included in the aggregate risk, the associated risk value also changed. Shown below is the score associated to the level of risk. In this current report, 2005 data has been rerun using the updated definitions. 2005 data reported in this current report has been rerun using the new algorithm.

Aggregate risk value (2005)	Risk level	Aggregate risk value (2007)
0	Low risk	0
1 to 3	Moderate risk	1 to 3
4 to 6	High risk	4 to 6
7 to 12	Severe risk	7 to 15

Table A3-2: Cumulative risk

Report variable	Questions from policy audit included in analysis
Patient identification policy risk	A score (33.3%) was recorded if there was a risk in any of the following: aggregate identification policy, aggregate identification of unconscious patients, and aggregate identification of unknown patients (see table A3-1).
Product identification policy risk	A score (33.3%) was recorded if there was a risk in the aggregate identification of the blood sample.
Undetected adverse events policy risk	A score (33.3%) was recorded if there was a risk in the aggregate post-transfusion observations.
Percentage of transfusion policy with increased risk	Sum of the above risk score

Table A3-3: Practice risks

Report variable	Best practice descriptor	Questions from practice audit included in analysis
Risk from non-continuous monitoring	Patients must be visually monitored by staff during the transfusion episode to reduce the risk of delay in detecting adverse transfusion reaction.	An episode was considered at risk if Question 2 answered no. Best practice determined using denominator based on total audits for hospital.
Patients not recorded as conscious*	An unconscious patient must have their identity verified by use of wristbands with all elements of identification (surname, first name, date of birth, and hospital identification number) <b>and</b> be continuously monitored during the transfusion process with complete documentation.	An episode was considered at risk if a patient was unconscious (Q3a) and any of the following not complete: wristband (Q4a – 4c, 4e, 4f), continuously monitored (Q2), and documentation (Q5b-d, 7). Best practice determined using denominator based on total unconscious patients for hospital.
Patients listed as unknown	An unknown patient from emergency department <b>must</b> be clearly identified by use of wristbands containing at an absolute minimum the hospital Unit Record Number.	An episode was considered at risk if a patient was admitted as an unknown patient via the accident and emergency department (Q4h) and the patient's wristband does not include the hospital identification number (Q4f). Best practice determined using denominator based on total unknown patients admitted for hospital.
Incomplete or no wristbands*	A wristband must contain all the following elements – family name, first name, date of birth and hospital identification number.	An episode was considered at risk if any of the wristband elements was not complete (Q4a – 4c, 4e, 4f). Best practice determined using denominator based on total audits for hospital.

Report variable	Best practice descriptor	Questions from practice audit included in analysis
<b>Matching product to person</b>	Product details must match the information on a patient's wristband <b>and</b> the compatibility report and/or prescription sheet signed by the person administering the blood.	An episode was considered at risk if either the patient's wristband not matched with the blood product (Q4g) or the compatibility report not signed by the person administering the blood (Q5a). Best practice determined using denominator based on total audits for hospital.
<b>Transfusion documentation incomplete</b>	Transfusion documentation must contain transfusion date and time, transfusion reason and transfusion stop time.	An episode was considered at risk if any of the following not complete: transfusion details (Q5b-5d), and recorded medical indication (Q7). Best practice determined using denominator based on total audits for hospital.
<b>Complete documentation in adverse drug reaction<sup>†</sup></b>	In the event of an adverse reaction to transfusion the details must be fully documented in both medical and nursing notes, as well as continuously monitored, transfusion details recorded, and pre and post transfusion observations recorded.	An episode was considered at risk if a patient had an adverse effect (8a) and any of the following not complete: adverse effect not documented (Q8b-8d), continuously monitored (Q2), documented transfusion details (Q5b-5d) and recorded medical indication (Q7), and pre and post transfusion observations (Q6b-6i). Best practice determined using denominator based on total patients experiencing an adverse effect for hospital.
<b>Incomplete pre transfusion documentation</b>	Pre-transfusion observations must include blood pressure, pulse, temperature and respiration.	An episode was considered at risk if any of the pre transfusion observations was not recorded (6b-6e). Best practice determined using denominator based on total audits for hospital.
<b>Incomplete post transfusion documentation</b>	Post-transfusion observations must include blood pressure, pulse, temperature and respiration.	An episode was considered at risk if any of the pre transfusion observations was not recorded (6f-6i). Best practice determined using denominator based on total audits for hospital.

\* Information included on wristbands: family name, first name, date of birth and hospital identification number must be included at a minimum, and gender preferably. Calculations of transfusion events at best practice standards, in the above table, do not include gender. The 2005 report did include gender; this data has been rerun for this report, to exclude gender.

\*\* The 2005 report used the denominator to determine best practice as total count of all audits for a hospital. This current report used a denominator based on subgroups, where appropriate. The 2005 data was rerun in the current report.

† In the 2005 report, the variable "the patient was unconscious" was included as a risk; however, since the hospital cannot control this element it was excluded in this report.

**Protocol – practice matrix**

The protocol score was derived from the policy audit by tallying all the “yes” responses, resulting in a maximum of 24.

The practice rank was derived from a targeted set of questions assessed on the practice audit for their “yes” responses, resulting in a maximum of 20 (For the 2005 audit, the maximum score was 19 due to Q3b not being asked; 2005 practice scores were adjusted create a maximum score of 20). Questions on the practice audit eliciting responses not directly aligned to transfusion protocols were not assessed (inpatient status, transfusion setting, level of consciousness, date/ time fields, adverse events entries). That is practice audit questions: Q1, Q2, Q3a, Q4d, Q6a, Q8a, Q8b, Q8c, and Q8d were excluded.

## References

Australian & New Zealand Society of Blood Transfusion and Royal College of Nursing Australia 2004, *Guidelines for the Administration of Blood Components*, Sydney.

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