

CEC eChartbook Portal Extract

Blood Watch

Transfusion Medicine Improvement Program

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BLOOD WATCH

Transfusion Medicine Improvement Program

Why is this important? There is a strong and expanding body of evidence for the association of transfusion with adverse clinical outcomes, including increased patient morbidity, mortality and hospital length of stay [1]. This association is also dose-dependent. Strategies to reduce or avoid transfusion are therefore important, to improve patient outcomes and reduce the risks. Additional drivers for change are escalating costs associated with transfusion and supply pressures, due to an ageing, and higher blood-using population [2] Blood is a precious resource which is freely donated and all health care providers must ensure responsible, sustainable and appropriate use [3].

Patient blood management (PBM) views each patient's own blood as a precious and valuable resource [4-5]. PBM uses medical and surgical strategies to conserve and appropriately manage a patient's blood, thereby improving outcomes and reducing or avoiding the need for transfusion. PBM allows transfusion to be reserved for when it is absolutely necessary. It is recommended that PBM should be adopted as the standard of care [6].

Since 2006, the Blood Watch program has aimed to promote, support and improve the provision of best transfusion medicine practice in NSW, based on a patient blood management framework and relevant best-practice guidelines. As approximately three per cent of hospitalised patients are transfused and research [7] demonstrated inappropriate use of red cells across NSW hospitals, improvement in red cell utilisation was an initial focus.

Starting in 2007, linked red cell utilisation data from NSW Health's Health Information Exchange (HIE) and local pathology and transfusion laboratory databases has been provided to facilities annually. This has allowed comparison of red cell usage, including dosage, both between NSW public hospitals and against the State average. Breakdown of usage by diagnosis related group (DRG) has also enabled the identification of specific areas of practice variation that may need to be addressed.

The program is progressing work on a platform allowing a closer-to-real-time review of data and expanding the data set, to incorporate other blood products, both fresh and fractionated. Other areas of work in Blood Watch include the:

- development of audit tools to understand and monitor clinical practice,
- development of a wastage reduction strategy for blood products,
- standardisation of adverse event reporting, and
- provision of educational resources and support for blood management initiatives.

Findings: Relative to the 2005/06 financial year, red cell utilisation data for NSW public hospital overnight-admitted patient episodes, there was, in 2011/12, a demonstrated reduction in the:

- rate of red cell transfusions administered per 100 episodes of care, of 12 per cent
- number of units of red cells transfused per episode, of 18 per cent.

This demonstrates an overall ongoing reduction (improvement) in both the number of red cell transfusion episodes and the red cell dose administered per episode.

Implications: Reductions in red cell usage have three significant implications: an overall improvement in appropriate transfusion practice, reduced patient risk from adverse outcomes and cost containment for local health district budgets.

What we don't know: The current database only provides comparison of red cell utilisation. We do not know if the improvements seen are also associated with changes in the use of other products, such as fresh frozen plasma (FFP) and platelets.

Data provided by the Australian Red Cross Blood Service has shown an overall reduction in the usage of FFP for NSW, however, further data linkage is needed to understand and, where necessary, improve practice at a facility level.

Several patient cohorts, non-admitted day-only patients and those managed in private health care facilities, for example, are not represented in this data set. There is therefore no capacity at this time to understand utilisation in these settings.

At present, we are unable to access data readily on the effect of reductions in red cell utilisation on patient outcomes. Published literature increasingly supports the association of transfusion with adverse outcomes. It would be valuable to perform a pilot data linkage project of red cell utilisation and defined outcomes (such as rates of infection or length of stay) for a small number of specific DRGs. Correlation showing improved outcomes with reduced transfusion would give support for more widespread practice change.

References:

[1] Patient Blood Management guidelines <http://www.blood.gov.au/pbm-guidelines>

[2] Farmer SL, Towler SC, Leahy MF and Hofmann A. Drivers for change: Western Australia Patient Blood Management Program (WA PBMP), World Health Assembly (WHA) and Advisory Committee on Blood Safety and Availability (ACBSA). *Best Pract Res Clin Anaesthesiol* 2013; 27(1): 43-58.

[3] Australian Health Ministers statement on national stewardship expectation for the supply of blood and blood products <http://www.blood.gov.au/sites/default/files/documents/nba-stewardship-stewardship-statement.pdf>

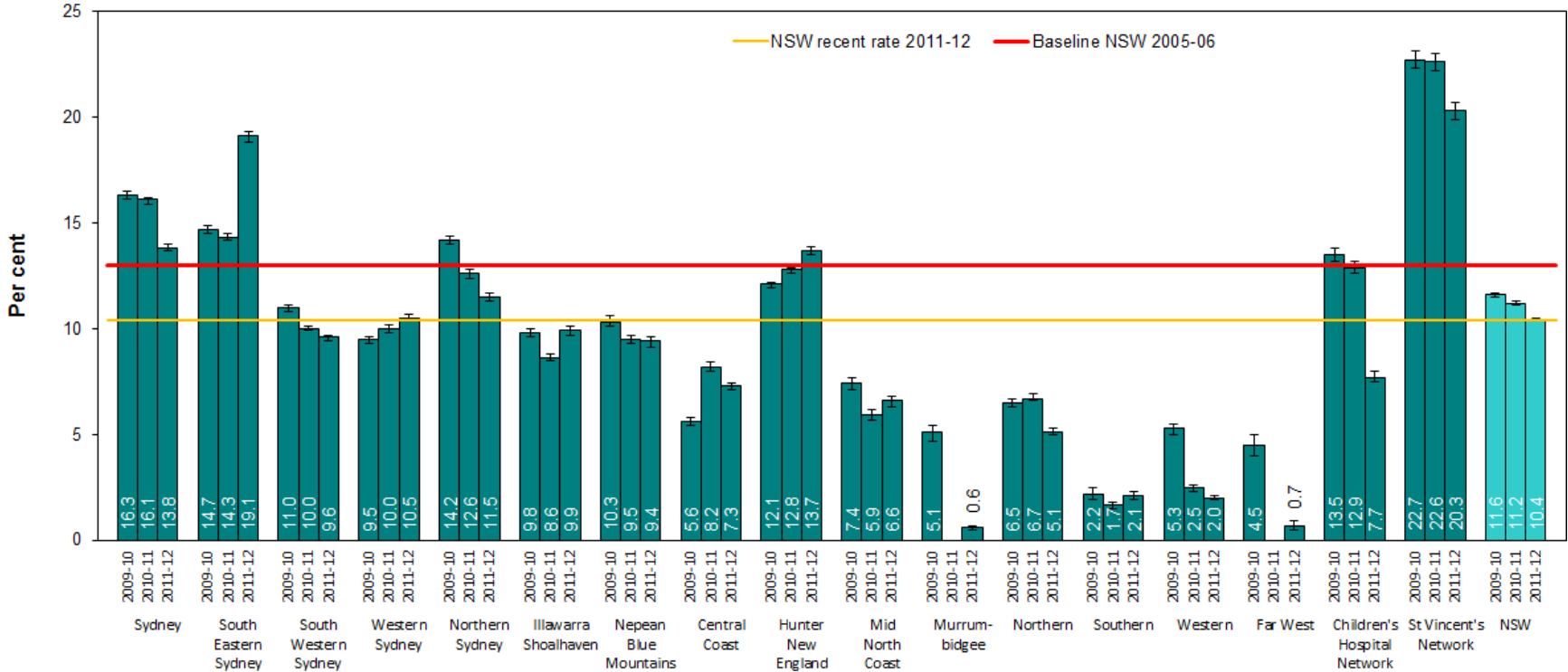
[4] Shander A, Hofmann A, Isbister J and Van Aken H. Patient blood management - The new frontier. *Best Pract Res Clin Anaesthesiol* 2013; 27(1): 5-10.

[5] Isbister JP. The three-pillar matrix of patient blood management - An overview. *Best Pract Res Clin Anaesthesiol* 2013; 27(1): 69-84.

[6] NSQHS Standard 7: Blood and Blood Products. Australian Commission on Quality and Safety in Health Care. <http://www.safetyandquality.gov.au/our-work/accreditation/>

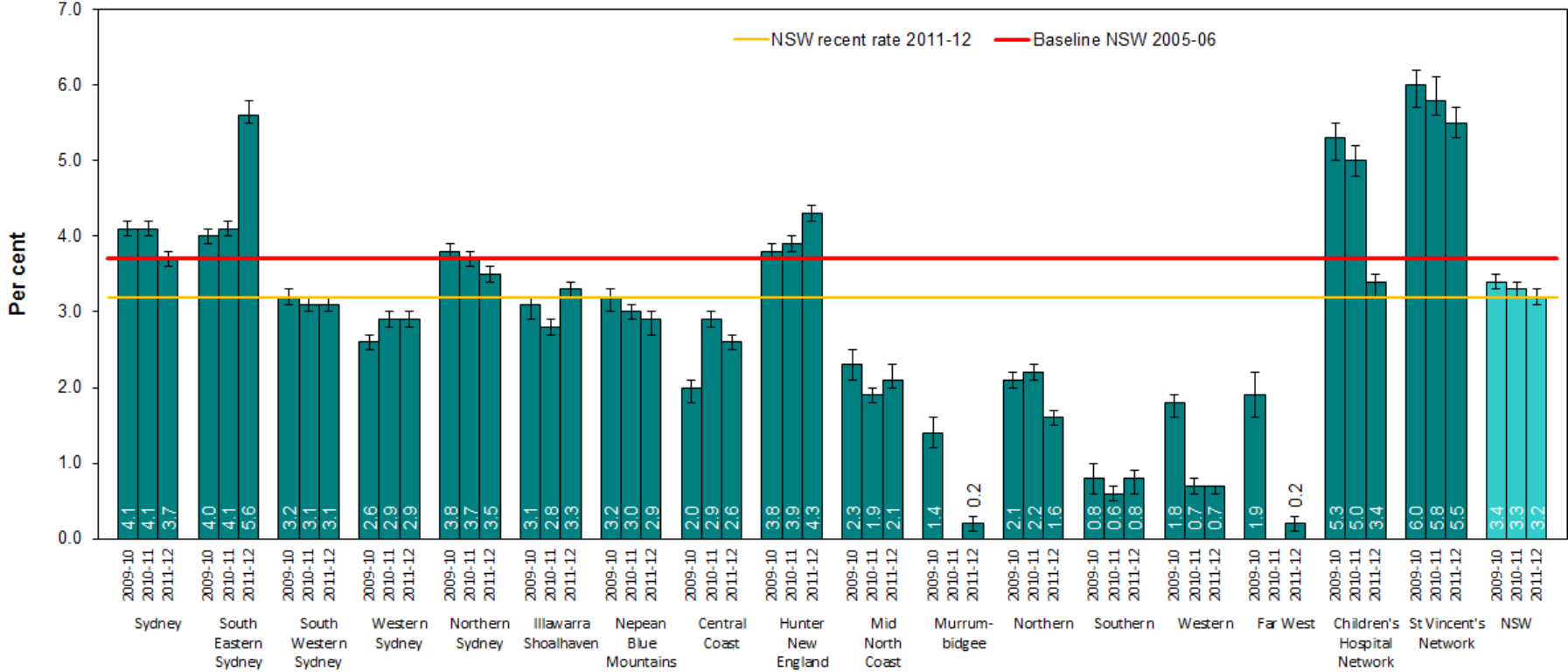
[7] Rubin G, Schofield W, Dean M, Shakeshaft A. Appropriateness of red blood cell transfusions in major urban hospitals and effectiveness of an intervention. *Med J Aust*, 2001; 175(7), 354-358.

Chart BW01- Number of red cell units used per 100 episodes of care by LHD of treatment in NSW public hospitals 2009-2012



Source: NSW Ministry of Health, Clinical Excellence Commission.
 Notes: This data is not adjusted for complexity. For case mix adjusted utilisation data for specific facilities or peer groupings, please contact the Blood Watch Program directly.

Chart BW02 – Rate of red cell transfusion episodes per 100 episodes of care by LHD of treatment in NSW public hospitals 2009-2012



Source: NSW Ministry of Health, Clinical Excellence Commission.

Notes: This data is not adjusted for complexity. For case mix adjusted utilisation data for specific facilities or peer groupings, please contact the Blood Watch Program directly.

Data Definitions

Chart:	BW01
Admin Status:	Current
Indicator Name:	Blood Watch Program: units of red cell blood used per 100 episodes of care
Description:	Number of red cell units used per 100 episodes of care by LHD of treatment in NSW public hospitals 2009-2012
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality
Data Inclusions:	Admitted inpatient episodes of care and, where linkage can be verified, red cell units used
Data Exclusions:	Non-admitted inpatient and outpatient episodes, red cell units used where linkage cannot be verified
Numerator:	Number of red cell units transfused
Denominator:	Admitted inpatient episodes of care
Standardisation:	None, crude count only provided, no adjustment provided for transfusion episodes where the number of units is > 5 (massive transfusion). For case mix or large volume transfusion adjusted rates, please contact the Blood Watch program directly.
Data Source:	NSW Health Information Exchange (HIE), and transfusion/haematology pathology data provided by local laboratory service providers
Comments:	Not all local health districts were able to provide data for each of their facilities

Chart:	BW02
Admin Status:	Current
Indicator Name:	Blood Watch Program: red cell blood transfusion rate per 100 episodes of care
Description:	Rate of red cell transfusion episodes per 100 episodes of care by LHD of treatment in NSW public hospitals 2009-2012
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality
Data Inclusions:	Admitted inpatient episodes of care and, where linkage can be verified, red cell units used
Data Exclusions:	Non-admitted inpatient and outpatient episodes, red cell units used where linkage cannot be verified
Numerator:	Number of red cell unit transfusion episodes
Denominator:	Admitted inpatient episodes of care
Standardisation:	None, crude rate only provided. For case mix adjusted rates, please contact the Blood Watch program directly
Data Source:	NSW Health Information Exchange (HIE), and transfusion/haematology pathology data provided by local laboratory service providers
Comments:	Not all local health districts were able to provide data for each of their facilities