

Single unit transfusion: Facilitating change in patient care and practice



Government of Western Australia
Department of Health

UK BBTS Scientific Meeting
Harrogate 24th Sept 2014



Dr Simon Towler
Medical Co-Director
Fiona Stanley Hospital



Delivering a Healthy WA



Government of **Western Australia**
Department of **Health**

WA Patient Blood Management Project

What is it?

Jurisdictionally based Project

- Statewide approach to patient blood management
- Working from change management principles
- Using data as driver for change
- Using system approach within a quality framework
- Using international expertise to lead
- Building a local team for long term success

Patient Blood Management

1st Pillar

Diagnose
and
manage
Anaemia

2nd Pillar

Minimise
blood loss
-
Control
bleeding

3rd Pillar

Avoid
unnecessary
transfusion

Multidisciplinary team approach

Facilitating Change Locally!

- **Establish sense of urgency**
- **Create a powerful guiding coalition**
- **Have a vision**
- **Communicate the Vision**
- **Remove obstacles to the vision**
- **Plan & Create short term wins**
- **Know when to declare victory (when it becomes the norm)**
- **Anchor the change into the culture**



J Kotter

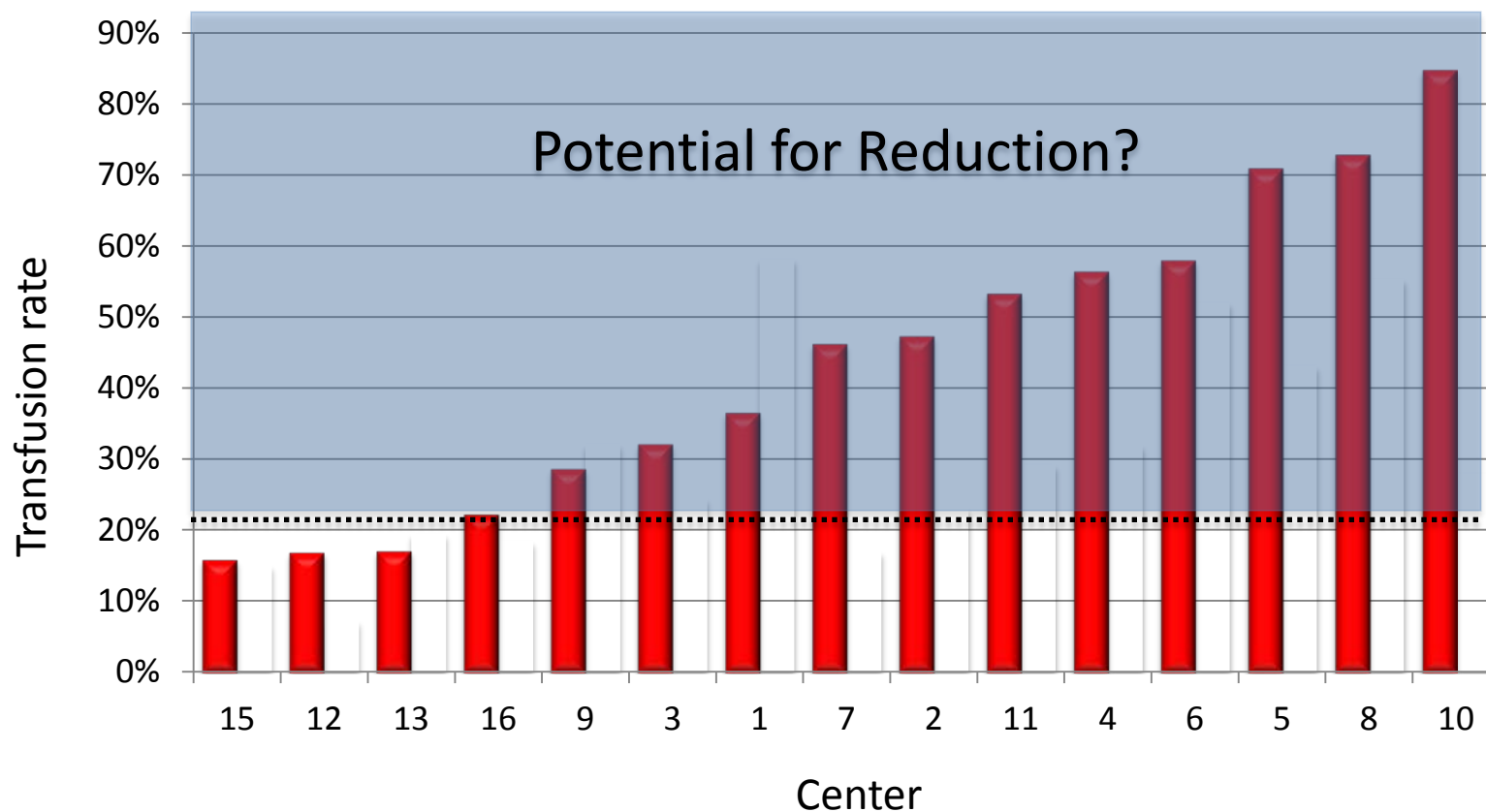
WA Patient Blood Management Project

Provide practice data -

- Statewide
- By institution
- By department
and later
- By individual clinician

Inter-Hospital Variability of Transfusion Rates in Matched THR Patients

1st Austrian Benchmark Study (n=1,347)

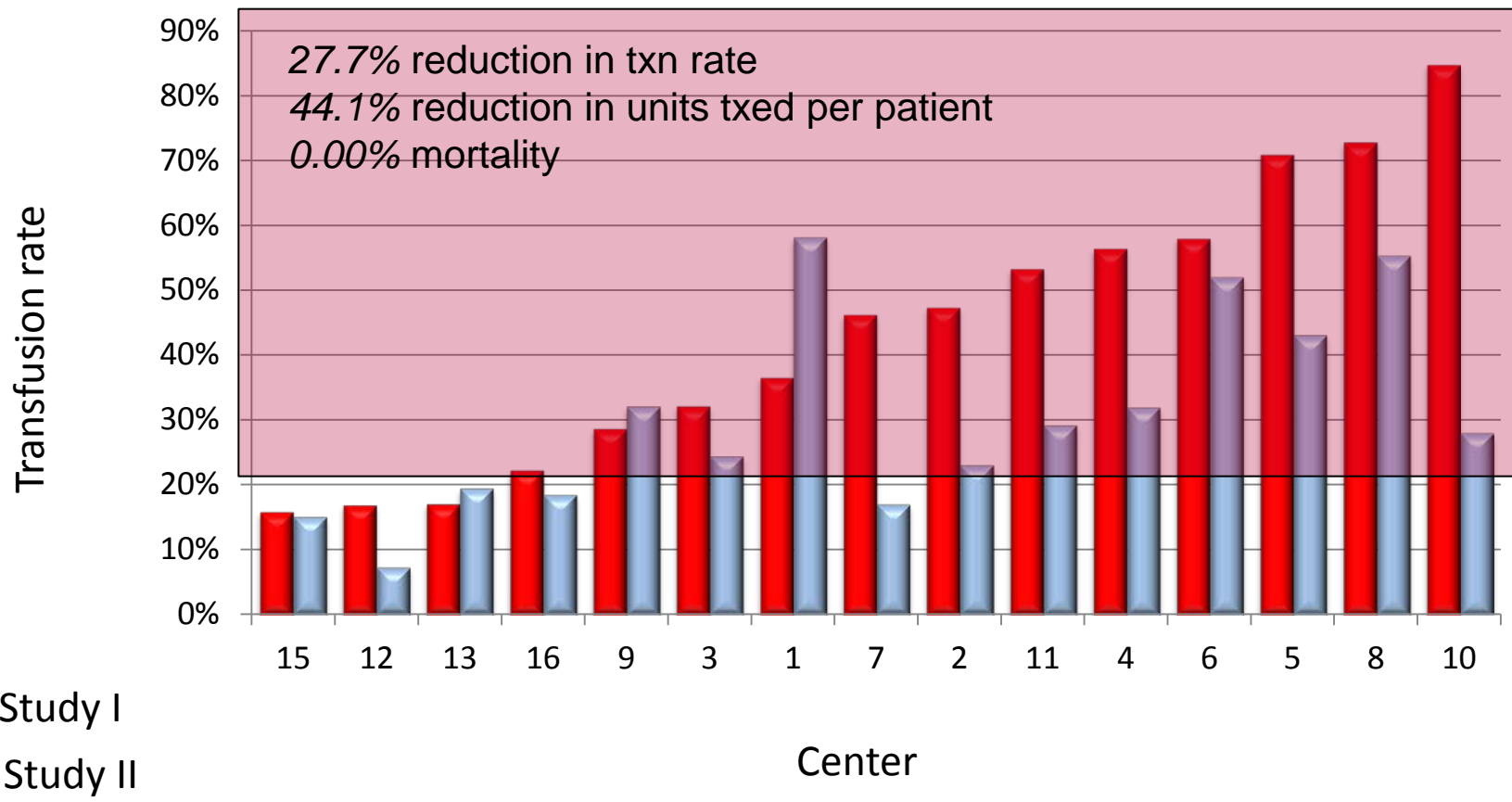


Gombotz H, Rehak P, Shander A, Hofmann A. Blood use in elective surgery: the Austrian benchmark study. Transfusion 2007;47:1468-1480

Acknowledgements to Axel Hofmann & Shannon Farmer

Inter-Hospital Variability of Transfusion Rates in Matched THR Patients

1st and 2nd Austrian Benchmark Study (n=2,570)



Gombotz H, Rehak P, Hofmann A. Blood use in elective surgery: Comparison - Austrian benchmark study I and II. Unpublished Data, 2011

Acknowledgements to Axel Hofmann & Shannon Farmer

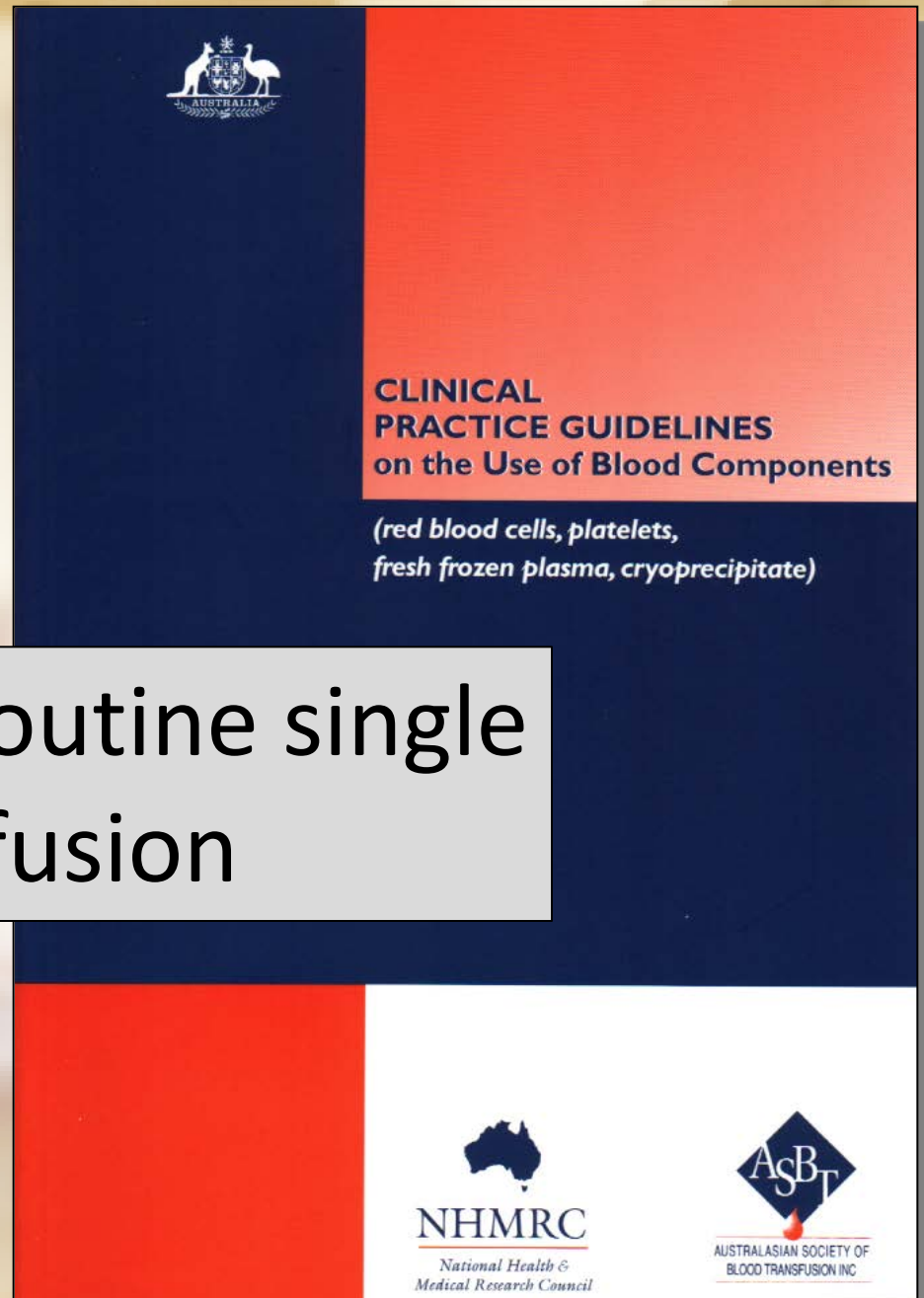
Single unit transfusion

In non-haemorrhaging patients –

- **Each time clinician orders and prescribes red cell transfusion only one unit is issued**
- **Patient may receive more than one unit after review**
- **Reduces multiple unit transfusions**



Australian Transfusion Guidelines



Recommended routine single
unit transfusion

Now replaced by the NHMRC
endorsed

**Patient Blood Management
Guidelines**

Fremantle Hospital PBM Program

A model for the WA Health System

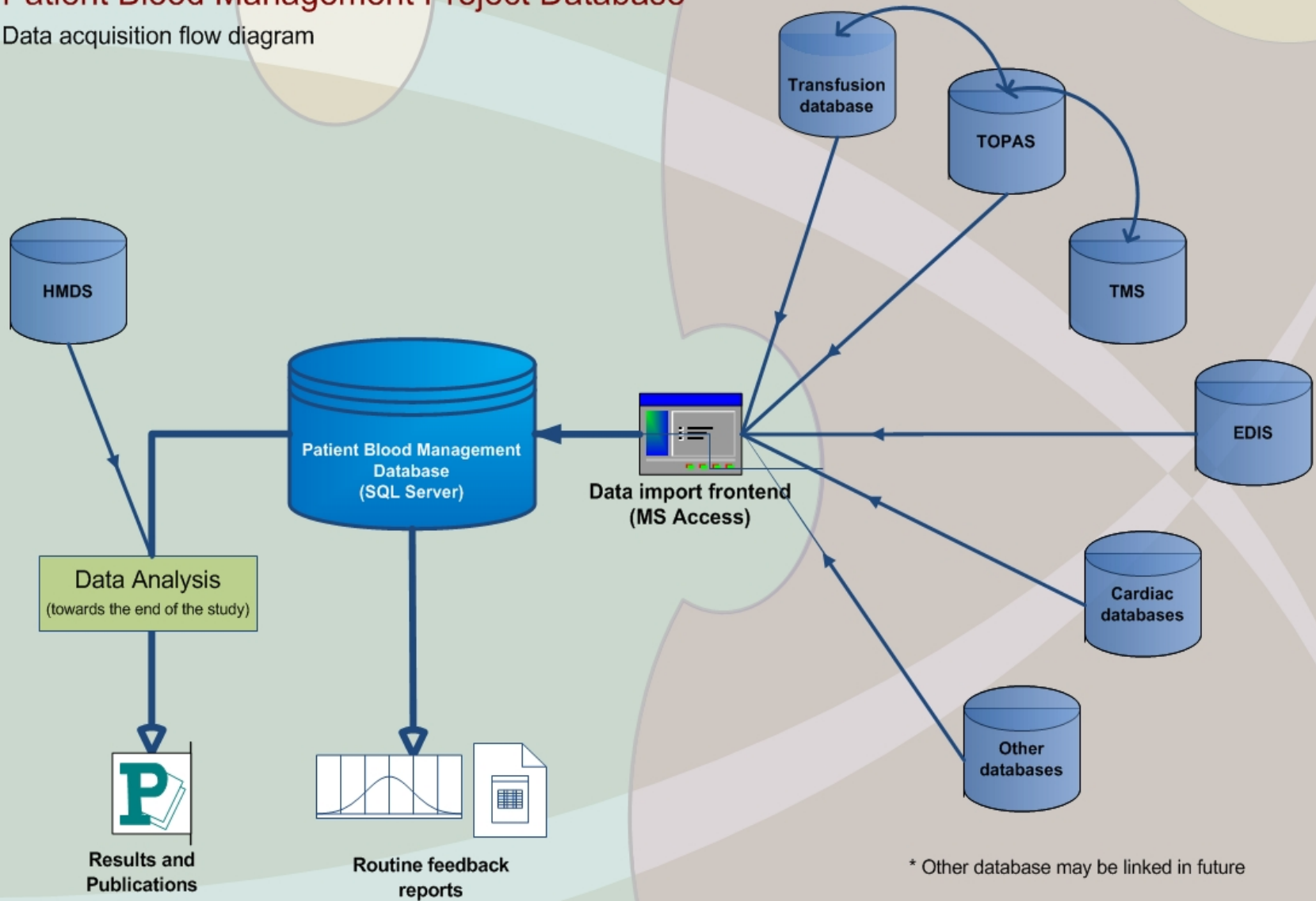


Focus is on:

- Reducing blood use
- Achieving improved patient outcomes
- Delivering cost savings

Patient Blood Management Project Database

Data acquisition flow diagram



Electronic audit of transfusion practice 321

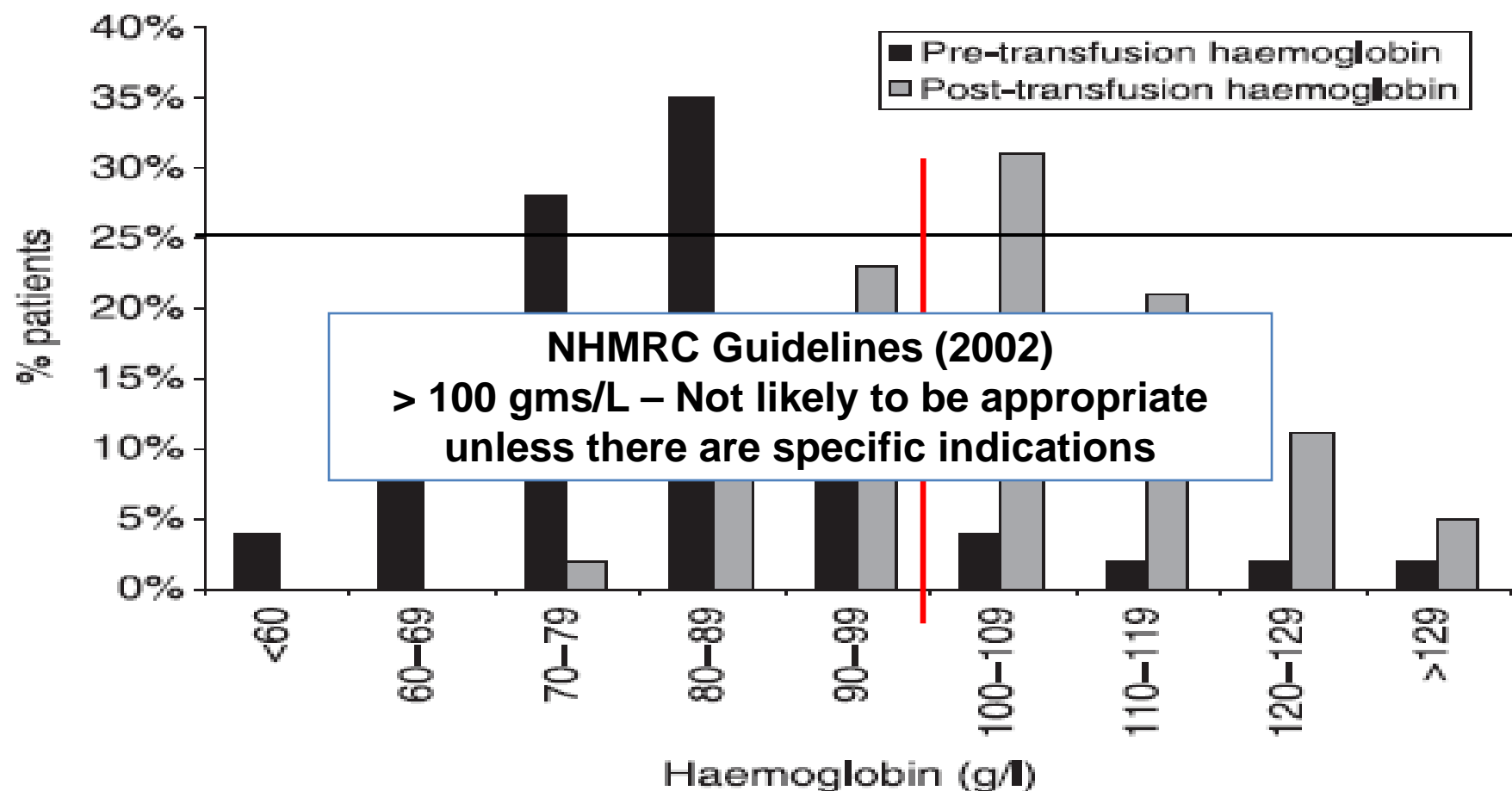
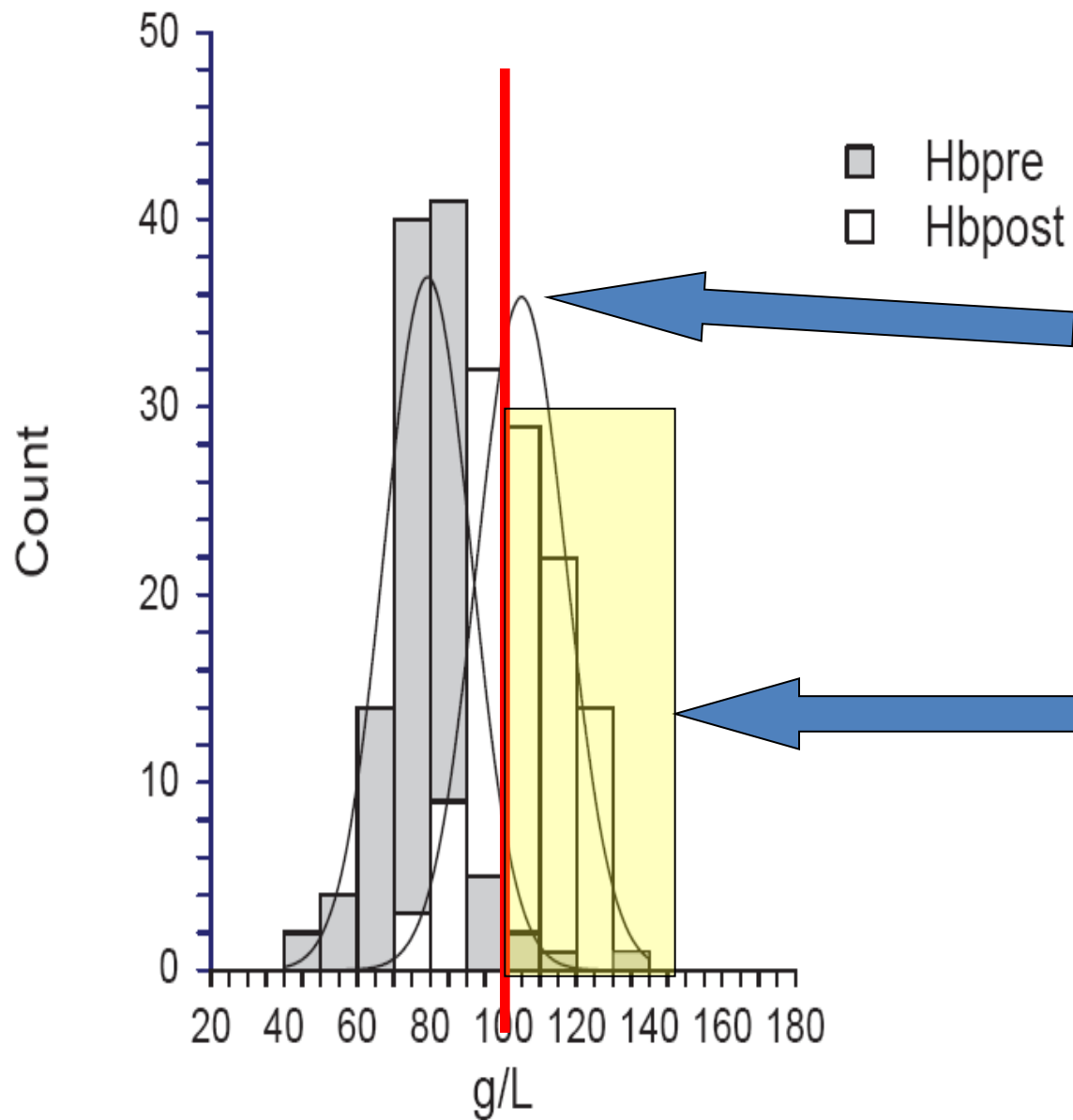


Fig. 5 Pre- and post-transfusion haemoglobin levels throughout the hospital.



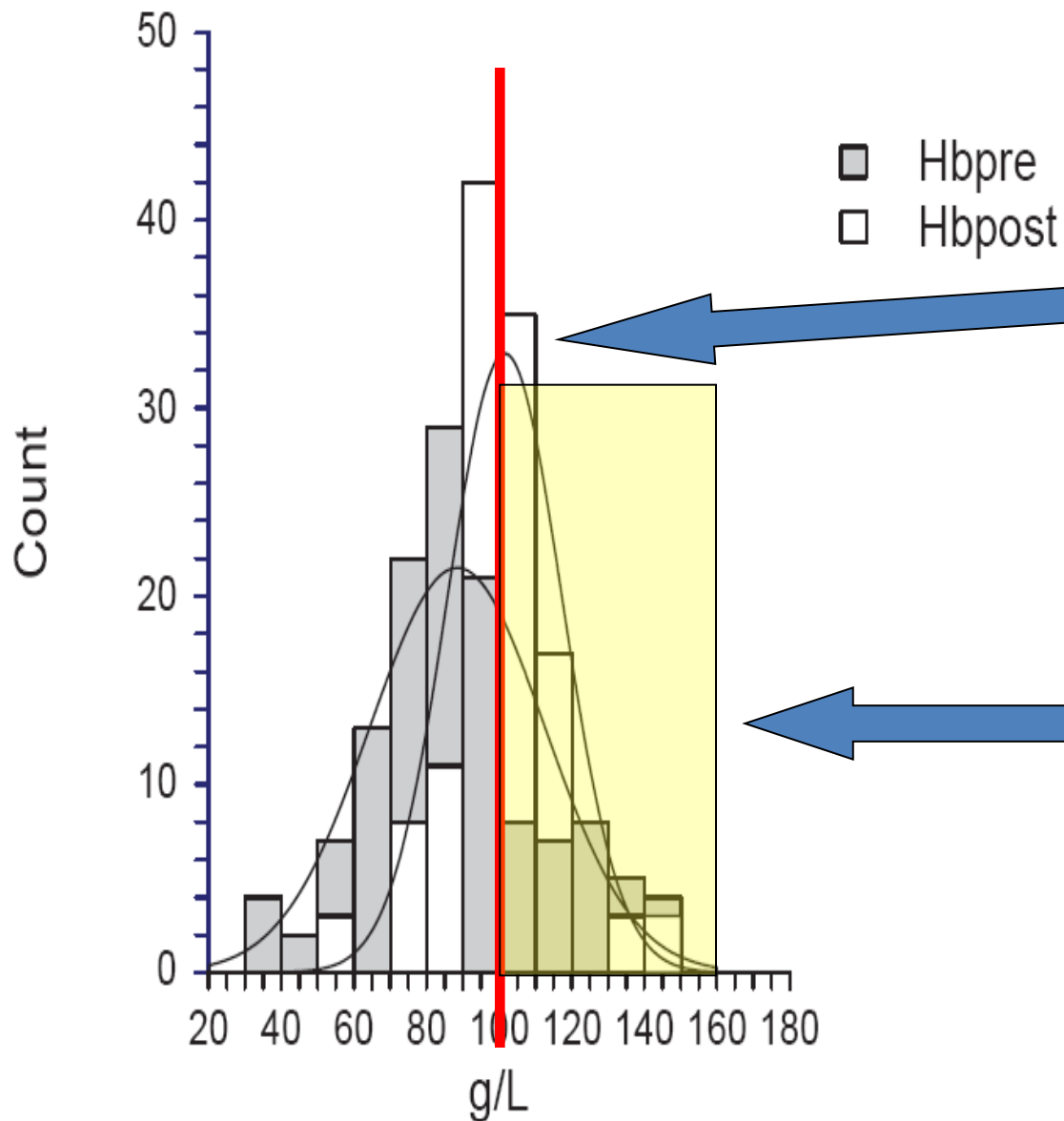
Orthopaedic Ward

**Mean post
transfusion
Hb 105 g/L**

**Over 60% of the
patients are
transfused
beyond 100 g/L**



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Emergency Department

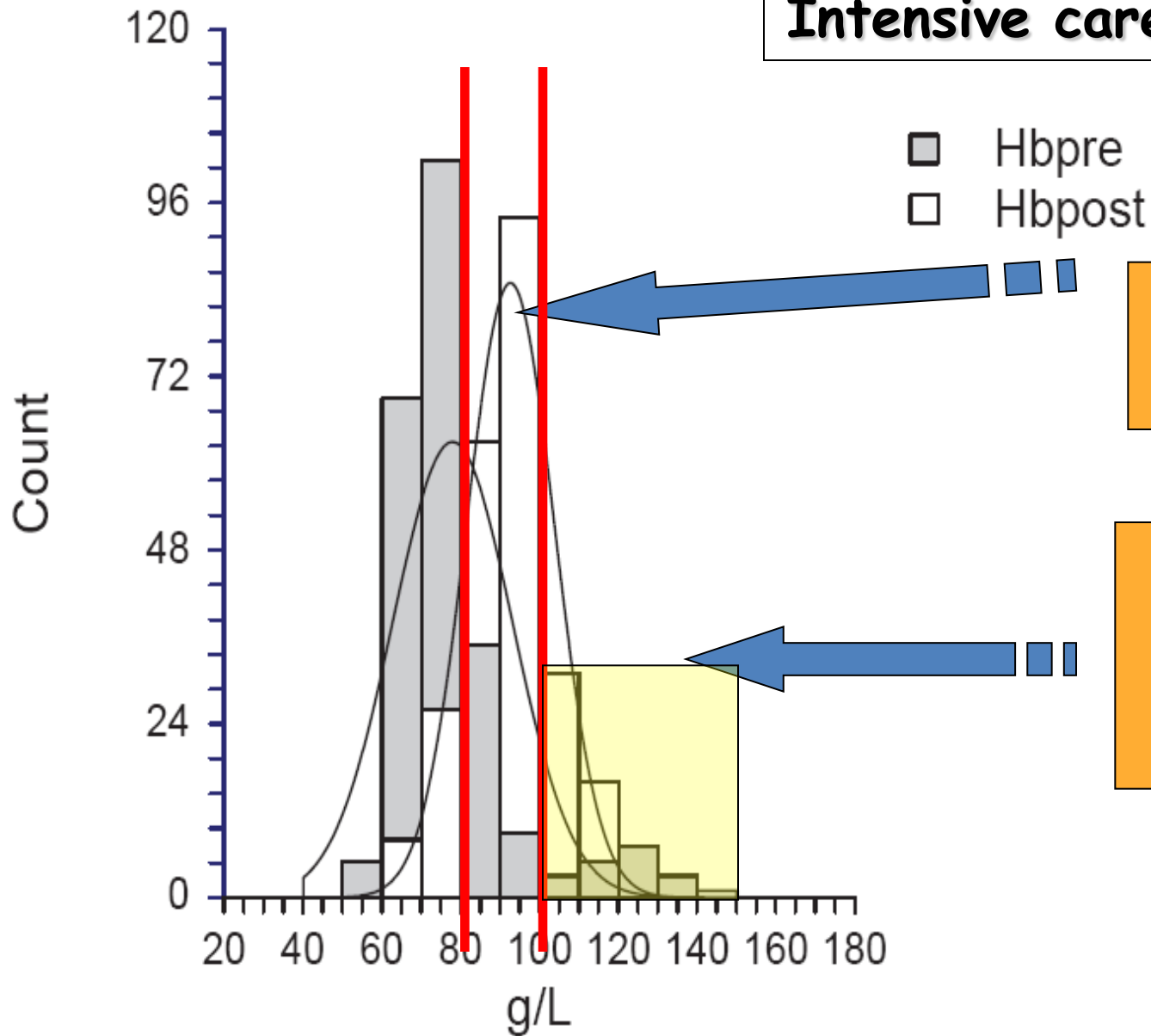
Mean post transfusion Hb 102 g/L

Over 60% of the patients are transfused beyond 100 g/L



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Intensive care



**Mean post
transfusion
Hb 95 g/L**

**Much smaller
cohort are
transfused
to levels
>100 g/L**

Fremantle Hospital PBM Program

A model for the WA Health System

Prescribe less
...then Reassess

Fremantle Hospital & Health Service


ONE UNIT ONLY

Prescribing a **SINGLE** unit of blood may reduce the risk of an adverse event

In accord with the NHMRC guidelines a "ONE UNIT" policy will be implemented from August 1st 2009

- Only one unit of blood can be ordered if a patient is not actively bleeding.
- Only one unit will be issued at a time.
- 2nd unit will be issued if clinically indicated after the patient has been reviewed.
- Each unit transfused is an independent clinical decision.
- If requested the Haematology Department will be happy to provide advice on the appropriate management of anaemia

Authorised by Julia Toney OMC Transfusion Med - July 2009 Review July 2013



Stay single
... prescribe single units

Fremantle Hospital & Health Service

Prescribing a single unit of blood may reduce the risk of an adverse event

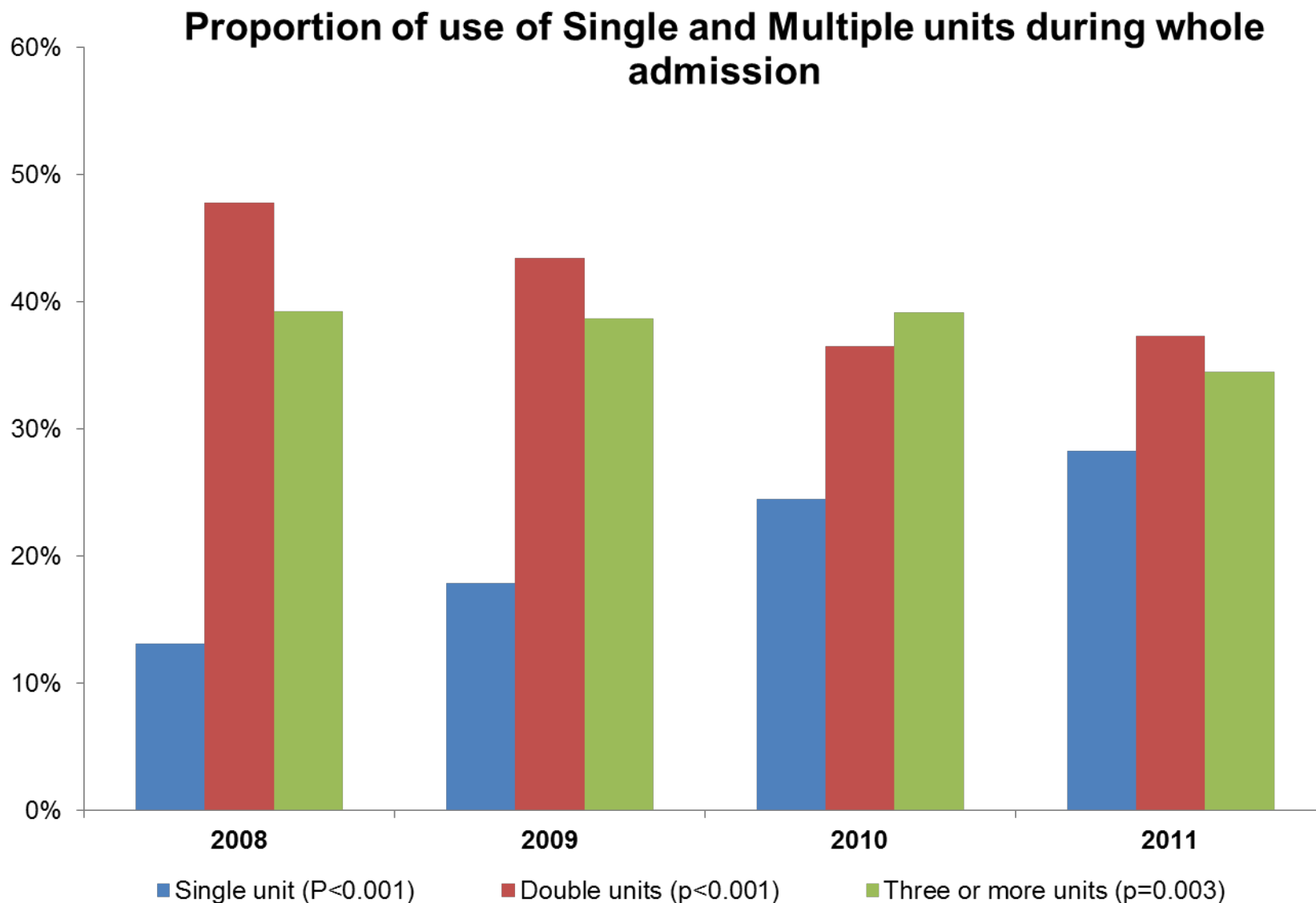
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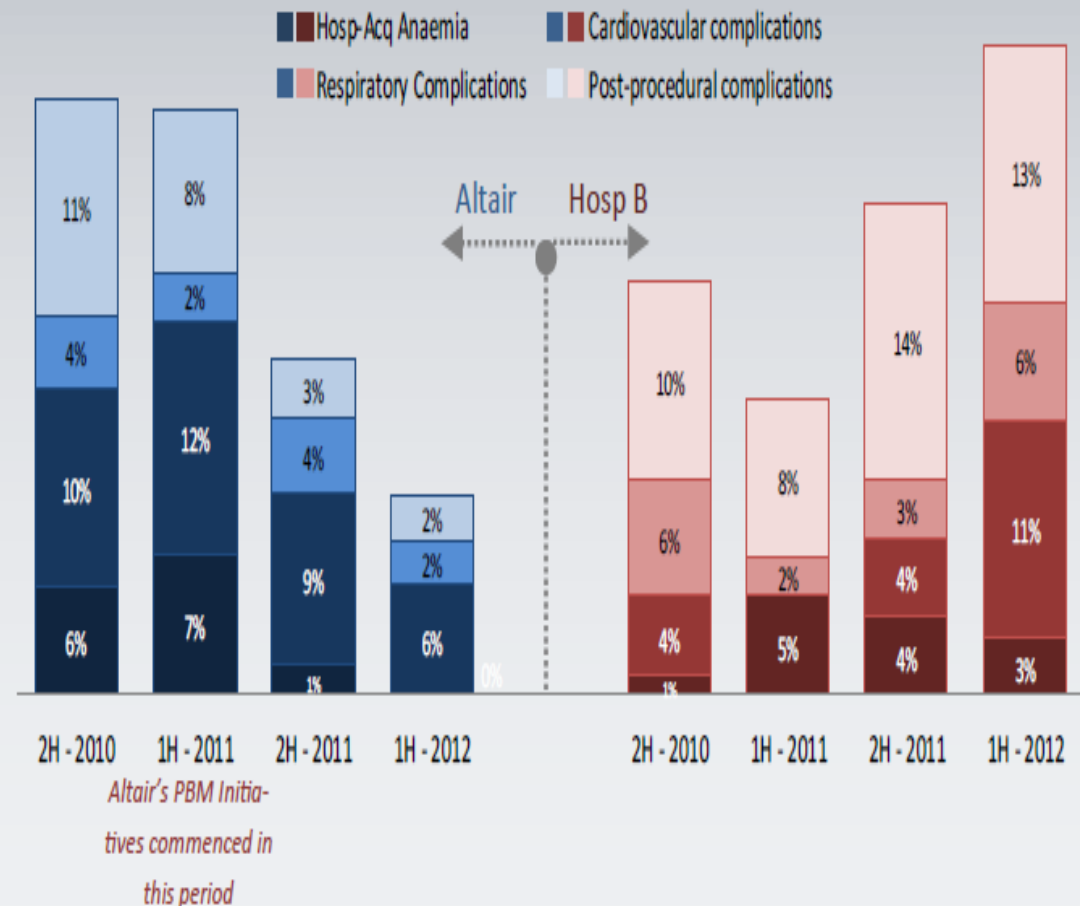
↑ Single unit transfusions at Fremantle Hospital



Q: What was the incidence of complications at Altair before and after PBM implementation in knee replacements?

Hospital acquired complications are undesirable outcomes associated with significant increases in length of stay. Using the Classification of Hospital Acquired Diagnoses (CHADx)² the biggest groups of complications in knee replacement admissions were identified. The adjacent figure represents the incidence of these complications pre and post PBM implementation for Altair (seen in blue). The red bars represent Hospital B's complication rates in knees during this same time period.

Hospital acquired complications: Knee Replacements, Altair & Hosp B



References:

1. The Health Roundtable: <http://www.healthroundtable.org/>
2. Jackson TJ, Michel JL, Roberts RF, et al. A classification of hospital-acquired diagnoses for use with routine hospital data Med J Aust. 2009 Nov 16;191(10):544-8.

Implementation of a Patient Blood Management Program

One Hospital's Experience in Changing Physician Practice and Hospital Culture

**Irwin Gross, M.D.
Eastern Maine Medical Center
Bangor, Maine**



The Challenge of Changing Transfusion Practice

- Paradigm shift
- Requires a change in physician behavior
- Challenges what physicians “know” about transfusion



Sisyphus - condemned to rolling an immense boulder up a hill, only to watch it roll back down, for eternity

Basics of Organizational Change

- Doesn't self-install
- All stakeholders must be engaged
- Anticipate resistance
- A scientific argument is necessary but not sufficient
- Change must be “hard-wired”

Edwards, Dustin M 66 Years DOB:12/09/1944 MRN:00001216 Height: 6 ft 0 in / 190 cm Weight:220 lbs / 100 kg

Discern Advisor®. Transfusion Management - Red Blood Cells

If this is an urgent/emergent transfusion, call blood bank at ext. 1405 for immediate release of product.

Evaluate for RBC Transfusion > Select a Specific Indication > Select Recommendation > Confirm

Evaluate for RBC Transfusion

Select a Specific Indication

Anemia - NOT ACTIVELY BLEEDING Transfusion Indications: ?

Note: Optimize hemodynamics and oxygenation before considering transfusion.

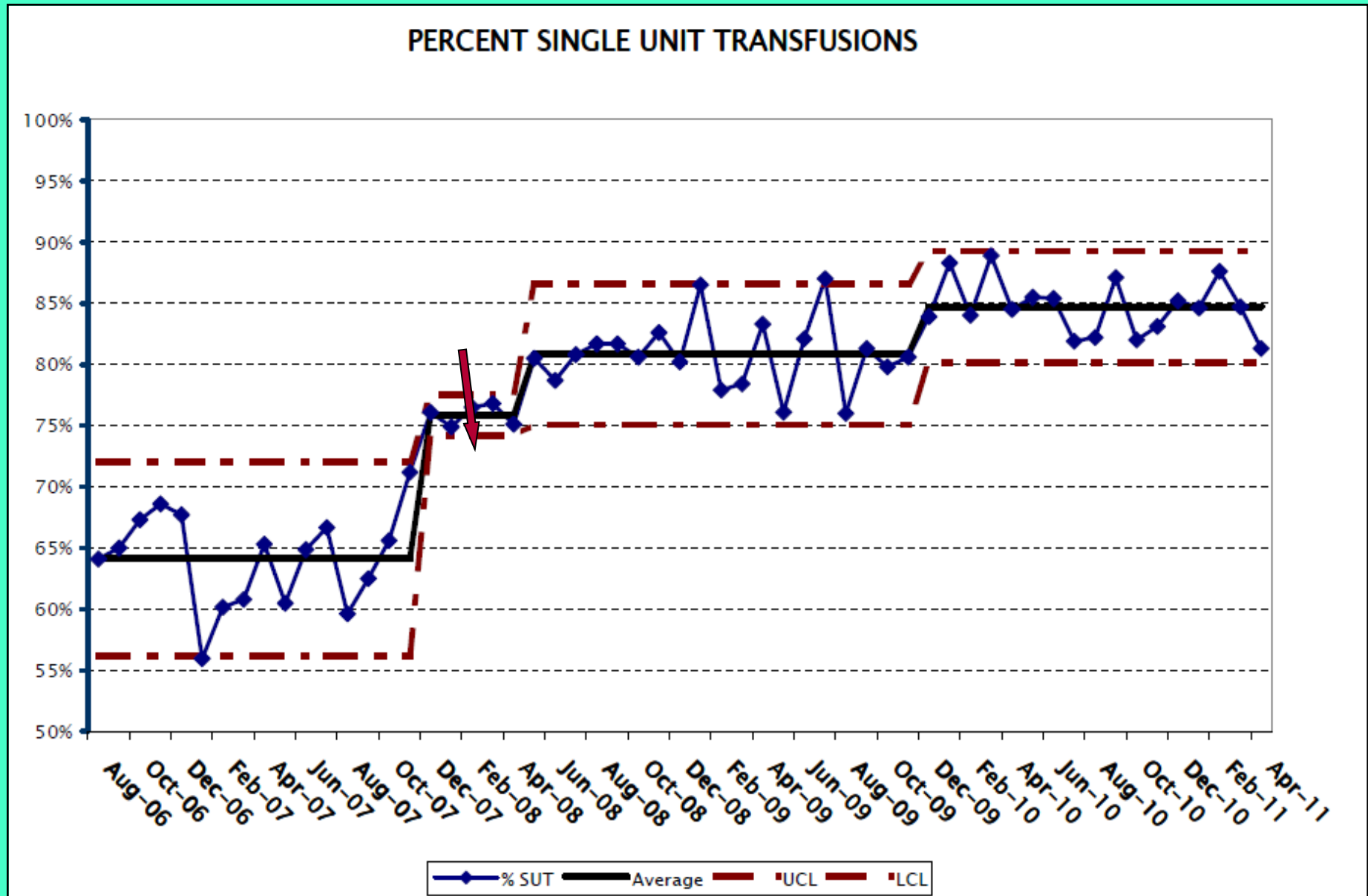
- ☐ Hgb less than 6 gm/dL without expected response to medical therapy.
- ☐ Pre-operative Hgb less than or equal to 7 gm/dL (Hct 21%) when alternative therapy (e.g. B12, Folate, IV Iron)
- ☐ Hgb less than 7 gm/dL AND signs/symptoms of anemia or tissue hypoxia without expected response to medical therapy.
- ☐ Hgb less than 7 gm/dL in a patient with active bleeding.
- ☐ Hgb less than or equal to 8 gm/dL in a patient with active bleeding.
- ☐ Hgb less than 8 gm/dL in patient with signs/symptoms of anemia or tissue hypoxia without expected response to medical therapy.
- ☐ Hb less than 8 gm/dL (Hct less than 24%) in patient with signs/symptoms of anemia or tissue hypoxia without expected response to medical therapy.
- ☒ Other Hgb 8.5 g/dl and sy

Based on the available clinical data, this transfusion order may be subject to prospective review. Please select the most appropriate action.

- Document the indication and continue with transfusion order
- Cancel transfusion order
- Go back to provide additional clinical information.
- Request a transfusion medicine consultation

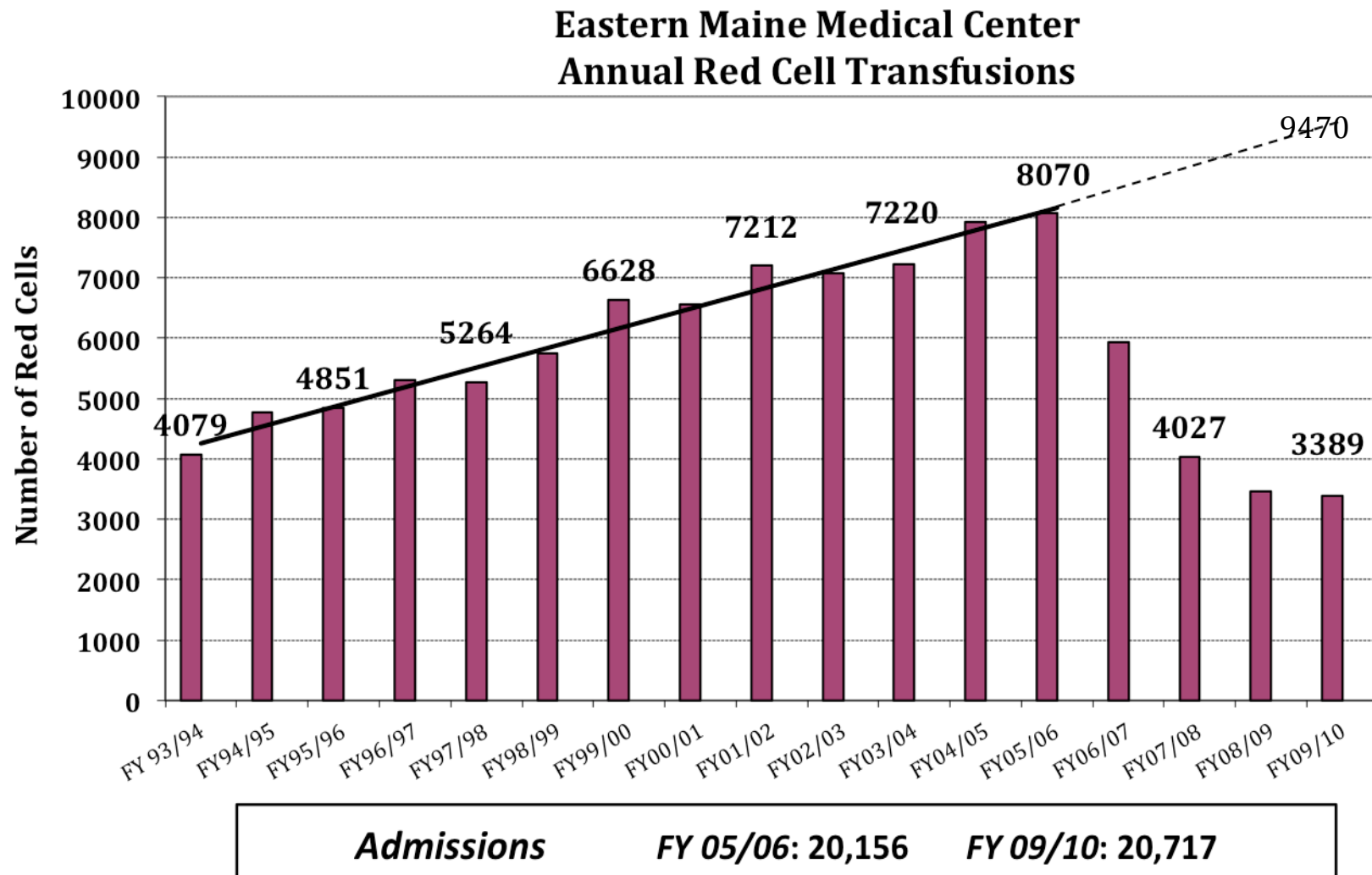
Continue

Impact of CPOE on % Units Ordered Individually



Red Cell Units Transfused

FY 1994 – FY 2010



Blood Acquisition Cost Savings – All Components

- Total blood acquisition costs in FY '06 were **\$3,200,000**
- Cost savings compared to base year, FY '06*
 - FY '07 \$ 850,000
 - FY '08 \$ 1,400,000
 - FY '09 \$ 1,600,000
 - FY '10 \$ 1,550,000
 - **Total \$ 5,400,000**

* No change in per unit cost from blood supplier
from 2007 - 2010

SIR KEN ROBINSON – adult education

- *“Innovation is hard because it means doing something that people don’t find very easy, for the most part.*

- ***The Challenge:***
- ***Changing clinician and***
- ***system behaviour!***

- *Things that people think “well they can’t be done any other way because that is the way it is done?”*

Managing Disease

How well do we treat patients?

Condition

Senile cataract

Breast cancer

Prenatal care

Low back pain

Coronary artery disease

Hypertension

Congestive heart failure

Cerebrovascular disease

Chronic obstructive pulmonary disease

Depression

Orthopaedic conditions

Osteoarthritis

Colorectal cancer

Asthma

Benign prostatic hypertrophy

Hyperlipidemia

Diabetes mellitus

Headache

Urinary tract infection

Community acquired pneumonia

Sexually transmitted disease

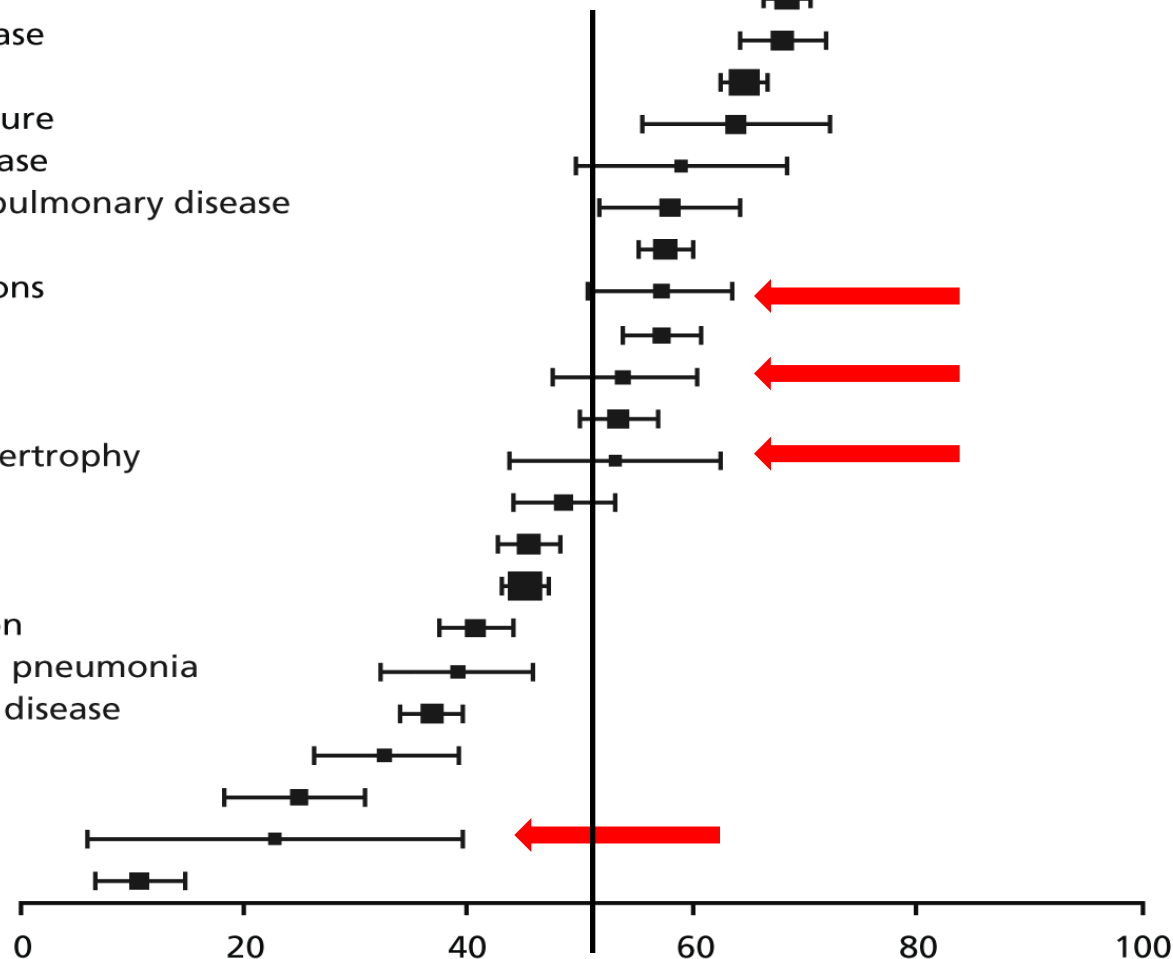
Peptic ulcer disease

Atrial fibrillation

Hip fracture

Alcohol dependence

50%



McGlynn
2001



National Blood Authority
Australia

About Us | Blood Sector Policy | Ensuring Supply | Blood Sector Risk Management | Appropriate Blood Use | Blood Sector Data | Factsheets

• **Patient Blood
Management Guidelines**

PATIENT BLOOD MANAGEMENT

Six evidence-based PBM Modules being developed:

1. Critical bleeding
2. Perioperative
3. Medical
4. Critical care
5. Obstetrics/gynaecology
6. Paediatrics (including neonates)

You can keep up to date with the development of the Blood Management Guidelines via our [Progress Updates](#) or by registering for regular [email updates](#).

[Public consultation](#) on the first draft guideline to be produced is planned to commence in March 2010.

<http://www.nba.gov.au/guidelines/review.html>

MARK TWAIN: SPEAKS THE TRUTH

It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so!

What are your ethics? What do you believe with regards to transfusion?





London Healthcare *"A Framework for Action"*

Clinical leadership.

The whole approach of this review has been to develop clinical support for our proposals. But it is easy to support principles for London, harder to support change in the hospital or locale where you work. Many clinicians understandably fear that change will affect their job satisfaction, their autonomy, their clinical reputation. To confront and assuage these fears, NHS London needs to indentify clinical champions to make the case for change.

Transfusion Medicine In American Medical Schools

Karp JK. et al. Transfusion. 2011 Nov;51(11):2470-9

- Transfusion is one of the most common procedure in hospitals
- N = 86 American medical schools surveyed (AAMC)
- 83% administrators reported - didactic lectures
- 48% of medical schools providing 1 or 2 hours of lectures
- Handful reported small group sessions on transfusion medicine (6%)
- 92% administrators were unfamiliar with the 1989 or the 1995 TMAA curricula.

Transfusion Practice

Influence of knowledge and attitudes on the quality of physicians' transfusion practice

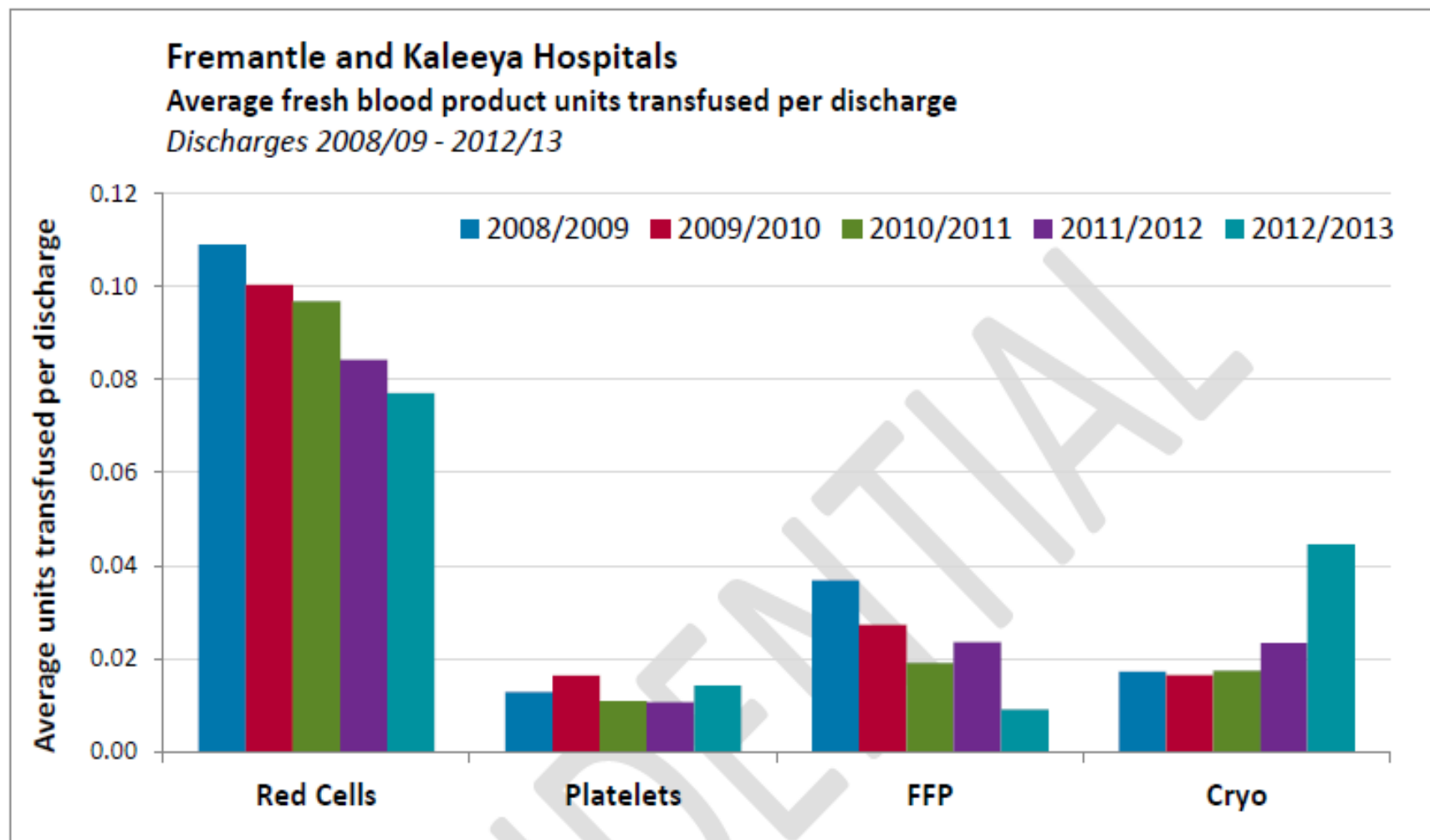
- Amount of transfused products was inversely proportional to physician knowledge of transfusion medicine
- Consultants - lower knowledge scores, greater confidence than residents
- >60% of residents inappropriate transfusion due attending pressure (once a month)

Salem-Schatz SR, Avorn J, Soumerai S B. JAMA 1990

Slide acknowledgement Prof Aryeh Shander

Whole of hospital transfusion data

Figure 8: Whole of hospital units transfused per discharge





Perth SUNDAY TIMES

Some patients at Fremantle Hospital were restricted to one unit of blood.

PATIENTS at a major WA public hospital were used as part of a three-year pilot program that deliberately restricted the amount of blood used in many transfusions – sometimes against the recommendation of the bedside doctor.

Unique time in patient blood management

- Research focussed on outcomes
- Costing studies - cost effectiveness
- Health reform
- Government interest
- Better information for patients
- New tools to keep clinicians up to date

Single unit transfusion

Outcomes –

- **Simple, low cost policy to implement**
- **Represents good clinical practice**
- **Facilitates development of PBM program**
- **Creates opportunity to engage clinicians**
- **In current programs is an effective change tool**
- **Data can be collected and fed back to clinicians**



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Department of **Health**

Thank you for
your attention

