



Iron Deficiency Anaemia

The Neglected Diagnosis



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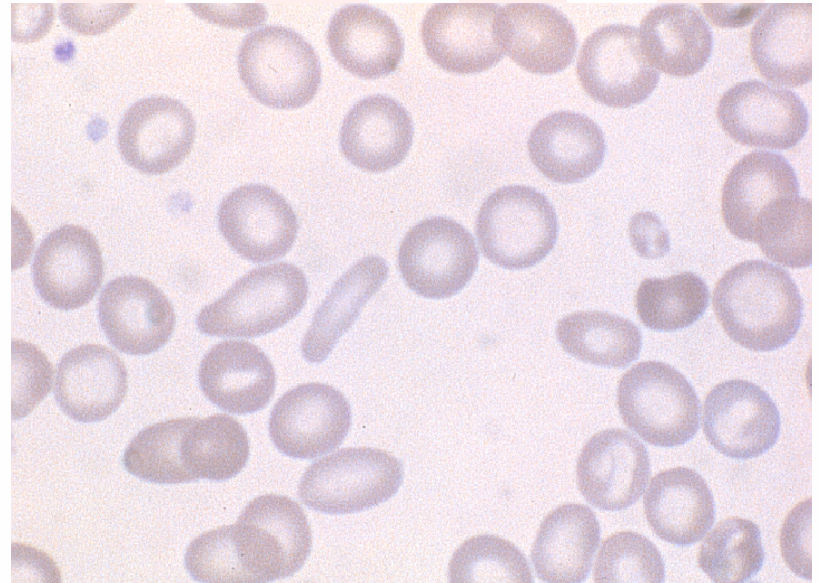


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Low lying but neglected fruit



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Outline

IDA: the neglected diagnosis

- 🔴 Anaemia assessment
- 🔴 Incidence of IDA
- 🔴 SA audit findings
- 🔴 Iron therapy in Australia
- 🔴 Barriers to improvement
- 🔴 Tools
- 🔴 The way forward?





Anaemia

- 🔴 Anaemia is a clinical sign (Hb below sex/age reference range) **not a diagnosis**
- 🔴 Like a fever it is important to **assess the underlying cause**
- 🔴 Transfusion reflex bypasses this





Importance of optimising anaemia management

Considerations beyond transfusion, sufficiency of blood supply, ethical responsibility to donors, donor health

- Underlying cause particularly malignancy
- Patient journey and appropriate care
- Best use of healthcare resources particularly with an aging population
- Quality of life
- Indigenous health



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Meet Mr SB

- 🔴 54 year old man
- 🔴 Presented to ED with acute abdominal pain and anaemia
- 🔴 Urgent colorectal surgery required
- 🔴 Peri-operative transfusion given which was within NHMRC guidelines
- 🔴 AdenoCa of with extensive peritoneal mets
- 🔴 Post-operative course complicated by an acute myocardial infarction





Taking a step back...



3 months previously

- 🔴 Hb 130, MVC 81 , MCH 26, RDW 16, platelets 479 incidental finding -attended another ED with vomiting and abdominal pain
 - 🔴 Abdominal pain and nausea for 3-4 months
 - 🔴 Brother with coeliac disease
 - 🔴 GP and patient unaware of FBE results



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Identification of anaemia

- 🔴 Emergency department
- 🔴 Medical patients as the presenting problem or an incidental finding
- 🔴 Elective surgical patients pre-op and post-op (elective & semi/urgent cases)
- 🔴 Perinatal
- 🔴 Primary care
- 🔴 Community

Significance of mild anaemia



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Anaemia in persons 65 years & older in US

3rd National health and nutrition examination survey (NHANES) 1988-1994 (Blood 2004)

- Approx 10% of people over 65 years
- Approx 20% of people over 85 years
 - 1/3 due to nutrient deficiency (20% IDA*)
 - 1/3 due to CKD and/or ACD (12% CKD#)
 - 1/3 unknown cause

*Ferritin<12 or TF sat<15%, # GFR <30



Changing indications for red cell transfusion in the North of England

- In 2004 2.3% of 9000 units went to patients with IDA based on clinical indication information available to the transfusion laboratory

Transfusion Medicine 2006 Wallis et al



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IDA: Time for a re-think?

- Anecdotes
- Transfusion audit data
- Literature- Victorian study in Hospitalised patients IMJ 2006



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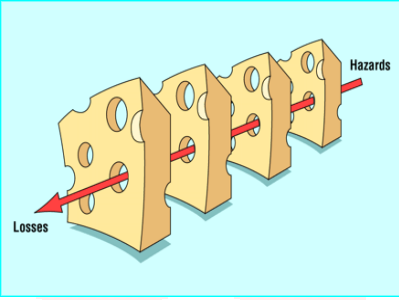
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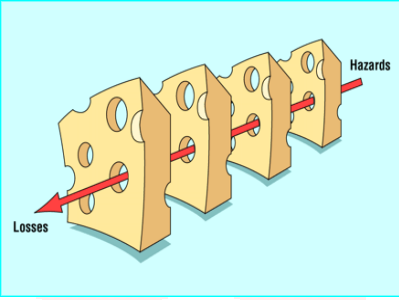


IDA pitfalls- assessment

- Cause of anaemia not considered- transfusion reflex and dosage not considered
- Anaemia overshadowed by other problems at the time it is first identified -not followed up
- History and physical examination bypassed
- Red cell indices/ blood film comments under utilised or not noted at a later time
- Misinterpretation of iron studies
- Assessment of underlying cause including in mild anaemia
- Elective surgery proceeds without investigation of underlying cause/correction



**LOOK FOR
THE CAUSE
OF IRON
DEFICIENCY**



Pitfalls -therapy

- Lack of an adequate trial of oral iron
- Easier to organise a transfusion than an iron infusion
- Single unit transfusion in stable patient/non-bleeding patient not considered
- Fear of IV iron products
- Risks of IV iron thought to be greater than blood
- Delay in investigation/therapy leading to a decompensated patient in need of transfusion
- Iron stores not replaced even if transfused leading to recurrent transfusion
- Too late to start iron therapy to make a difference





Iron Quiz

📌 How quickly can your body make the equivalent of a unit of red cells with oral iron in IDA?



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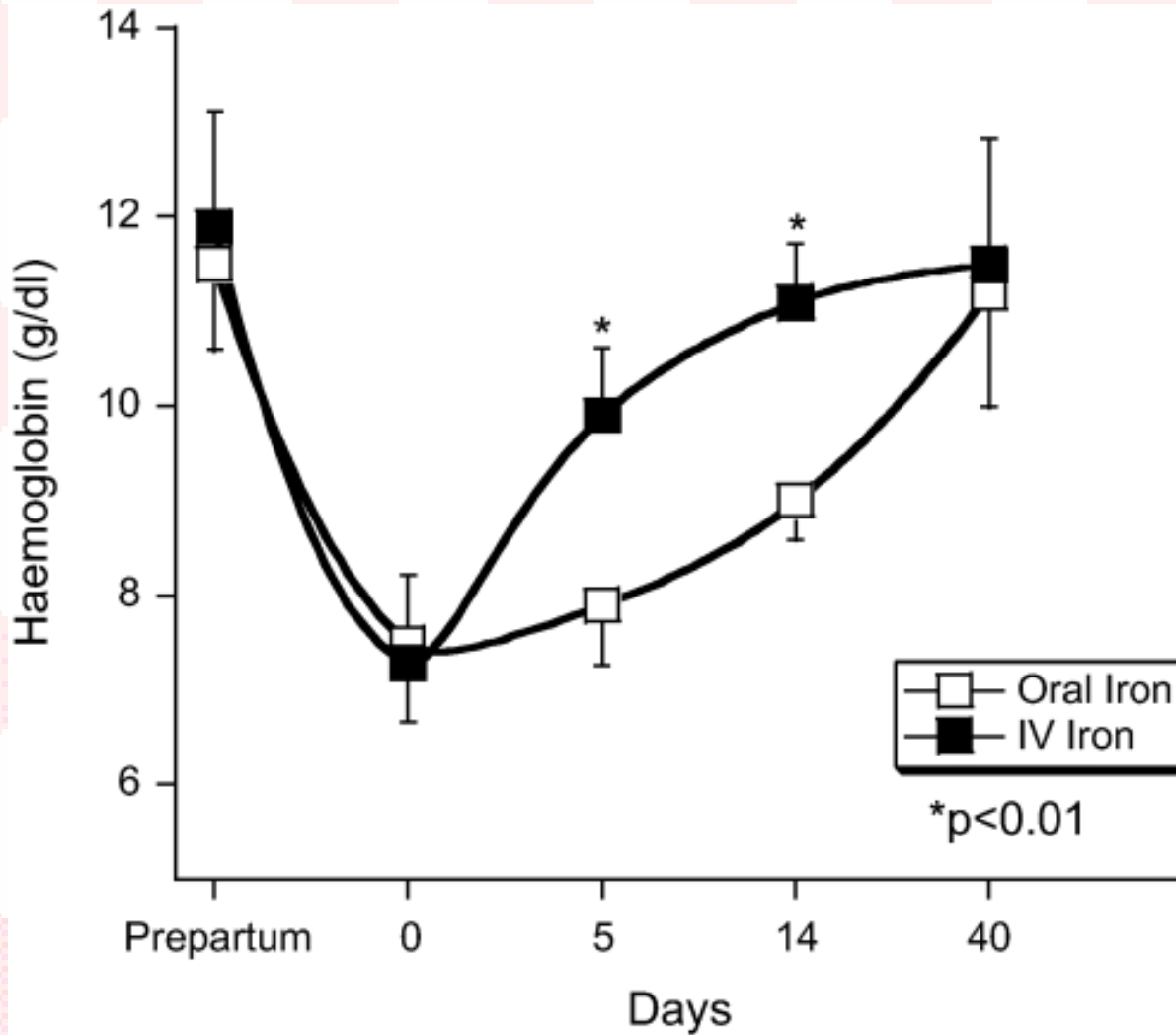


Post partum anaemia

🔴 Bhandal and Russell (Oxford) 2006

- 🔴 44 women with Hb < 90 and ferritin <15 at 24-48 h post delivery
- 🔴 Exclusions: iron therapy/intolerance/transfusion, Hx asthma, thromboembolism, seizures, drug abuse, signs of infection or hepatic or renal dysfunction
- 🔴 Randomised to oral iron sulphate 200mg bd or Venofer 200mg on day 2 and 4 in 250ml NS over >30min
- 🔴 Mean increase in Hb D5 was 25g/L versus 7g/L
- 🔴 No serious adverse events or haemodynamic disturbance, metallic taste 23%, flushing 18%





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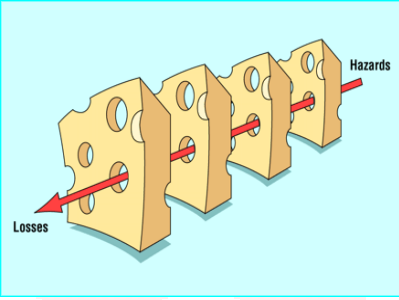
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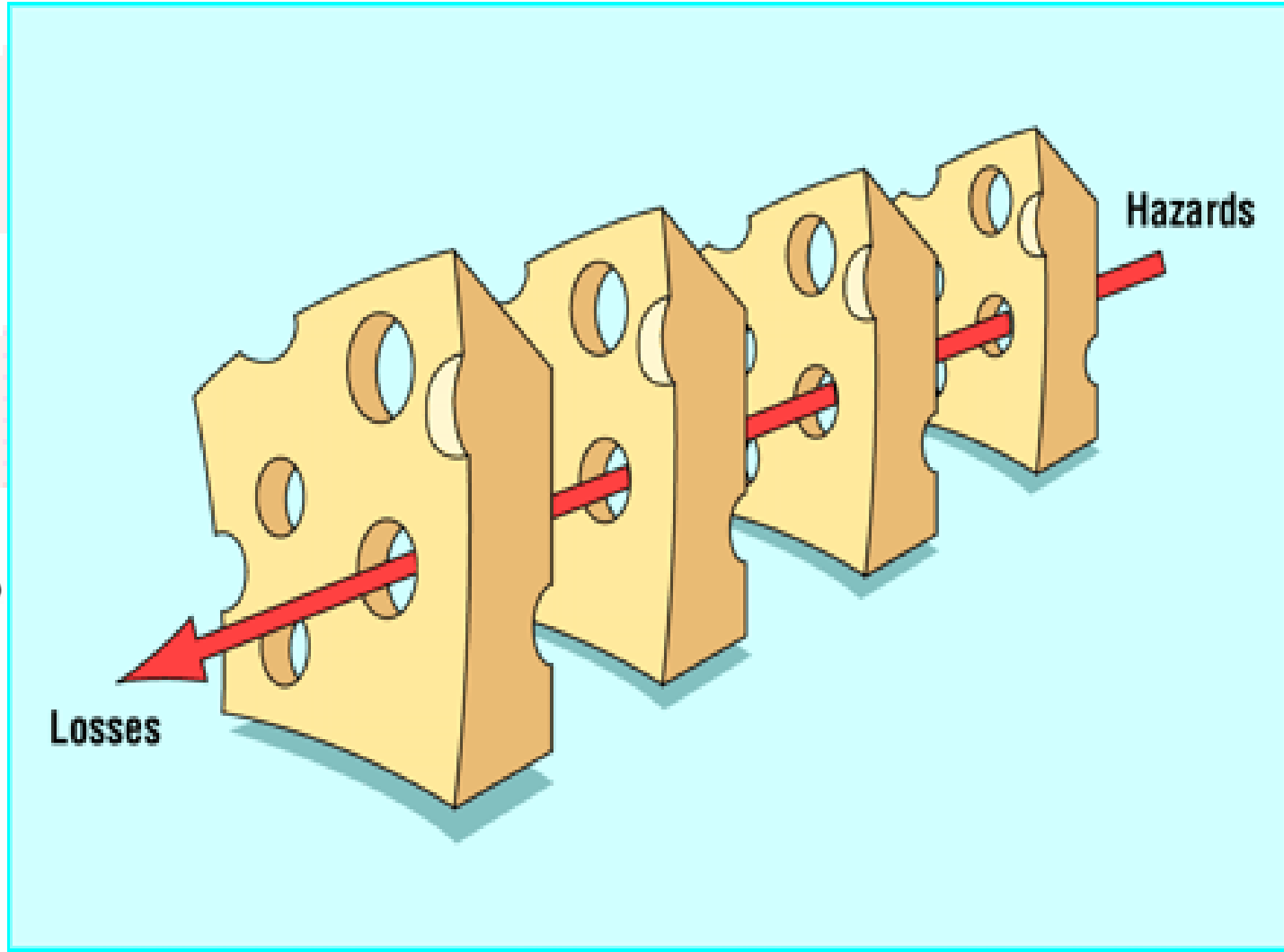
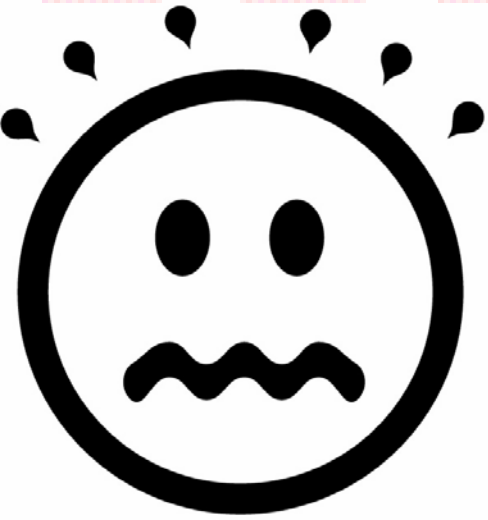
Patient/community education

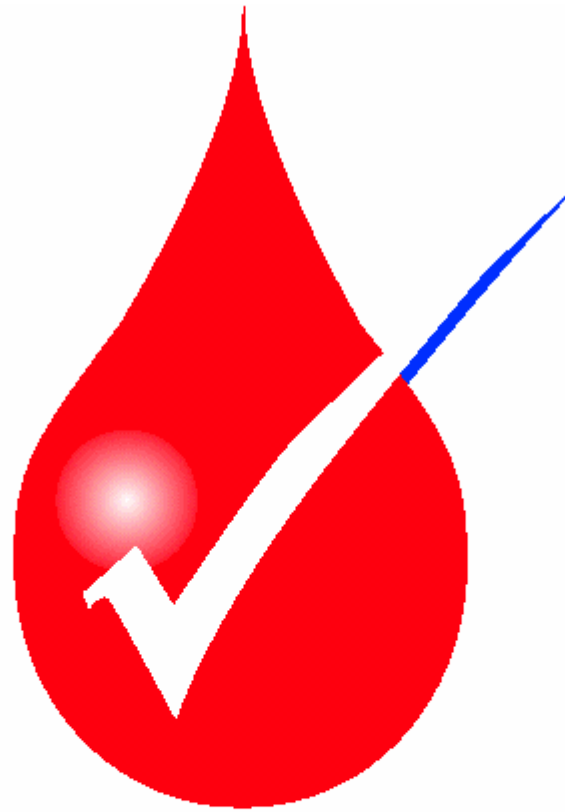
- 🔴 Not seeking medical assessment until severe symptoms- caring for others
- 🔴 Not recognising symptoms are abnormal or related to life style especially with chronic onset
- 🔴 Not understanding the importance of iron therapy and side effect management
- 🔴 Taking iron preparations with too little iron and those that claim to be gentle on stomach
- 🔴 Follow-up missed once feeling better





Focal Points





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South Australian Transfusion Improvement Initiative



Hospital transfusion nurse
consultants central



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- 2002- Pilot project
- 2003- Pilot extension
- 2004- Program!
- 2005- Spread/ IVIg nurse
- 2006-08**

- 🔴 country & private EQuIP
- 🔴 anaemia management
- 🔴 Flip chart
- 🔴 e-learning competency
- 🔴 Paediatric patient info



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auditmakerTM

for health professionals

BloodSafe Effective Use-5.4

 Database No. (AutoNumber) Institution No.

 Audit date **Today**
**data
entry form**

 Group that this patient belongs to:
control bar

 Demographics | **User comorbidities** | Other factors | Text outcomes | Numerical outcomes | Units

Next Record
Comorbidities that you want to look at:

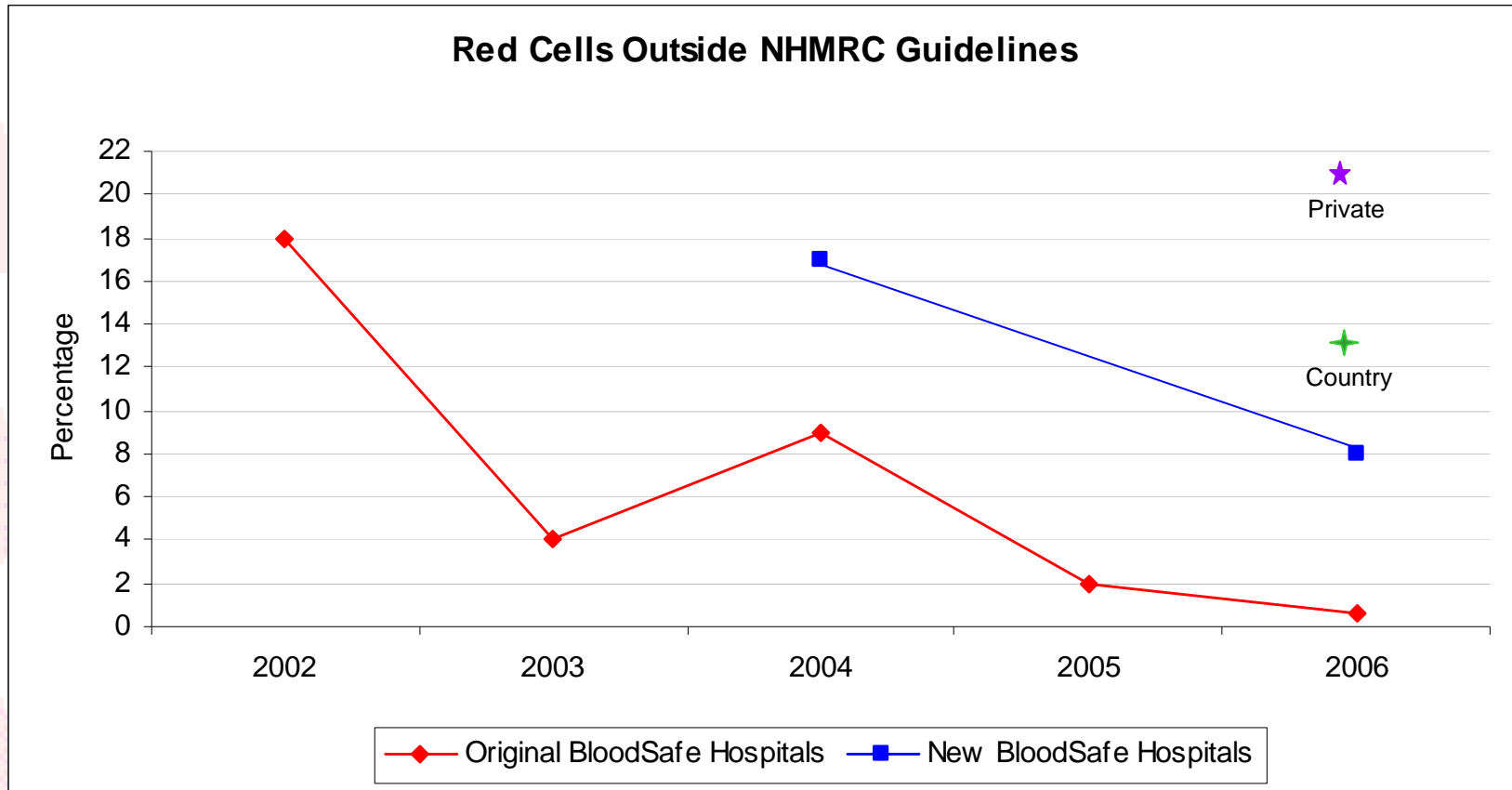
*Previous
Record*
 AUTOLOGOUS units available comment:
 PLANNED surgery comment:
New Record
 -Ongoing or uncontrolled blood loss comment:
 -Symptoms/signs of anaemia/hypoxia comment:
 -Cardiac insufficiency comment:
 -Respiratory insufficiency comment:
 -Cerebrovascular insufficiency comment:
 -Sepsis comment:
 -Pre-operative transfusion comment:
 OTHER factor favouring transfusion comment:
*Delete
Record*
*Open
patient
form*
*Close
Form*
Notepad

Record: 1 of 1

whether they have comorbidity 1 or not



Appropriate Use





3 Pillars of Blood Management

- ✓ **Optimise pre-operative haemoglobin**
- ✓ **Minimise blood loss**
- ✓ **Tolerance of normovolaemic anaemia (Dose)**



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BloodSafe Audit: Pre-op Anaemia

- Overall 30% (R 22-61%) of planned orthopaedic surgery patients who required transfusion were anaemic on admission in 2002
- 18% of all joint replacement patients in 2005
- 11/13 transfused gynaecology patients had IDA in 2005





SA Public Audit 2006

- 🔴 287 transfusion episodes at 6 metropolitan public hospitals
- 🔴 **7% of episodes IDA documented by MO**
(R 3-12%)
 - 🔴 All episodes “within” NH&MRC guidelines
 - 🔴 2/3 of episodes were in patients with no documented overt blood loss
 - 🔴 20% received iron infusions (all at one hospital)
 - 🔴 Potential for prevention in primary care





SA Country Audit 2006

- 🔴 131 transfusion episodes at 5 hospitals
- 🔴 **12% of episodes IDA documented by MO**
- 🔴 All stable patients without significant/overt blood loss documented
 - 🔴 5/13 (38%) were outside NH&MRC guidelines
 - 🔴 2 transfusions “within guidelines” were in young (symptomatic) patients where IV iron would have been effective
 - 🔴 40% of patients were over 80 years and earlier identification in primary care may have prevented transfusion





SA Private Audit 2006

- 159 transfusion episodes at 6 hospitals
- **5% of episodes IDA documented by MO**
 - 2/6 patients had overt blood loss
 - 6/6 episodes were within NH&MRC guidelines
 - 1 patient with Hb 100g/L (59 yo with chronic occult GI blood loss & red cell antibodies!)
- 2 other patients identified with IDA not recorded by MO & transfusion could have been prevented (women with menorrhagia)





Medical vs Surgical

Public Metro

- 3/62 **5% surgical**
- 13/100 **13% medical**
- 1/6 obstetrics

Country

- 1/30 **3% surgical**
- 14/93 **15% medical**
- 1/8 obstetrics

Private

- 2/115 **2% surgical**
- 6/43 **14% medical**



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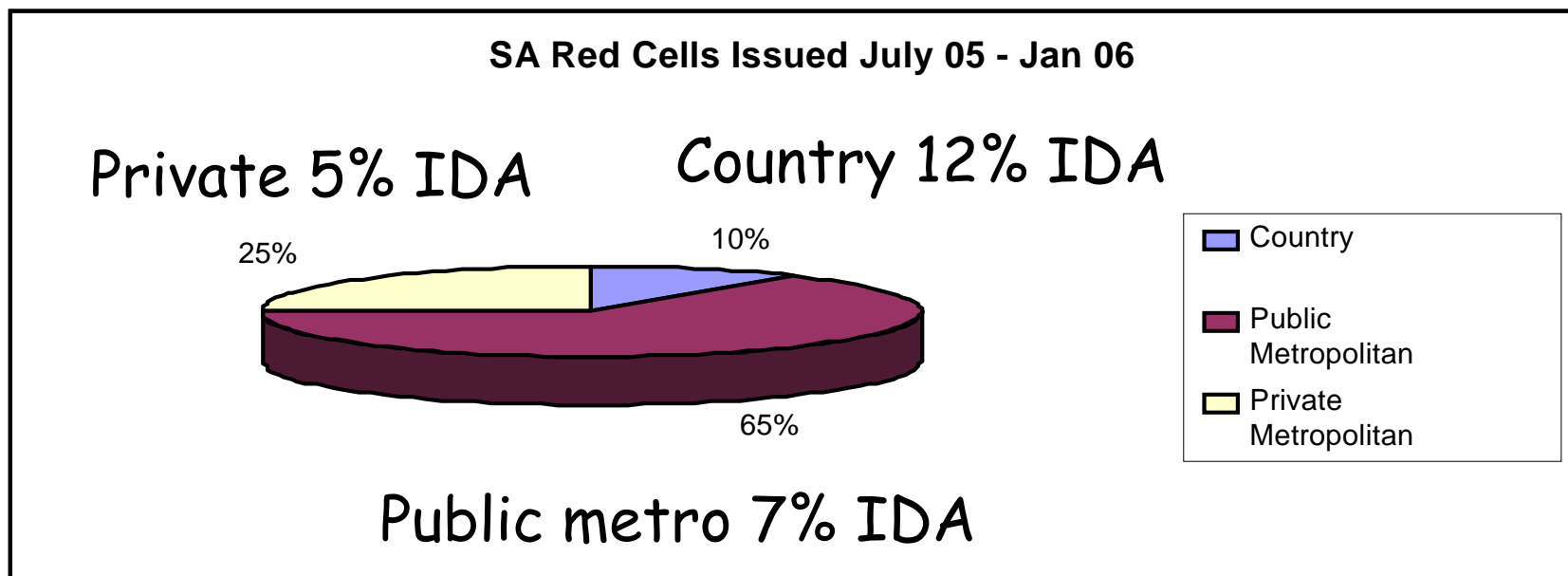


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2006 SA Red Cell Supply



7% of transfusion episodes with documented IDA

5% with documented IDA and without overt blood loss



Tip of the iceberg?



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OACIS Linkage to FBE & iron studies

- Random retrospective case note audit of transfusion episodes
- In 2006 from 6 public metro hospitals in SA
- Data collected by transfusion nurse consultants in Auditmaker™ customised by BloodSafe for RBC and anaemia
- Each episode reviewed by 2 haematologists including FBE results (indices/film) and iron studies



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2006 audit results

- 232 transfusion episodes
- 53% male, 53% medical, 3% obs/gyn
- 79% were in stable patients and of these 4% where outside NHMRC guidelines
- IDA status not able to be assessed in 5% (11)
- Iron studies available in 38% (83) within 2 months





category

- 🔴 Ferritin <20 = **5%**
- 🔴 Ferritin <20 and TF sat $<20\%$ with suggestive FBE/film = **10%**
- 🔴 No iron studies but FBE/film suggestive = **10%**





Indication of IDA

- 🔴 Episodes in surgical patients 22%
- 🔴 Episodes in medical patients 24%
- 🔴 Episodes in obs/gynae 4/7

Overall 24% of transfusion episodes in metro public hospitals in 2006 of which 93% were stable patients





Underlying kidney disease

- 221 episodes
 - 20% eGFR 30-60
 - 15% eGFR <30



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WA study of incidence of transfusion for IDA

- Ferritin <20 between 2001-2005
- 615 patients of which 39% were transfused
- **Represented 2.5% of patients transfused** (mean age 73 years)
- Mean post transfusion Hb- 75% had a Hb>100 and 44% >110g/L, 2.5% single unit
- At least 62% did not have documented bleeding
- 46% without clinical bleeding had an increment >30g/L and 21% increment >40g/L with 2 unit transfusion

Grey and Finlayson Vox San 94, 138-142 2008



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Evaluation of IDA in hospitalised patients

Predictors of endoscopic and laboratory evaluation of IDA in hospitalised patients
Ioannou et al Southern Medical Journal 2007

- Prospective study in 2 university hospitals in Seattle of consecutive general medical inpatients in 1998
- 637/1738 (37%) without acute GI bleeding where anaemic



Results

- 43% had iron studies
 - 38% low (Ferritin <45 or TFsat<15
 - 31% has endoscopic evaluation
 - 39% had serious GI pathology
- Investigation not correlated with functional status



Which treatment?



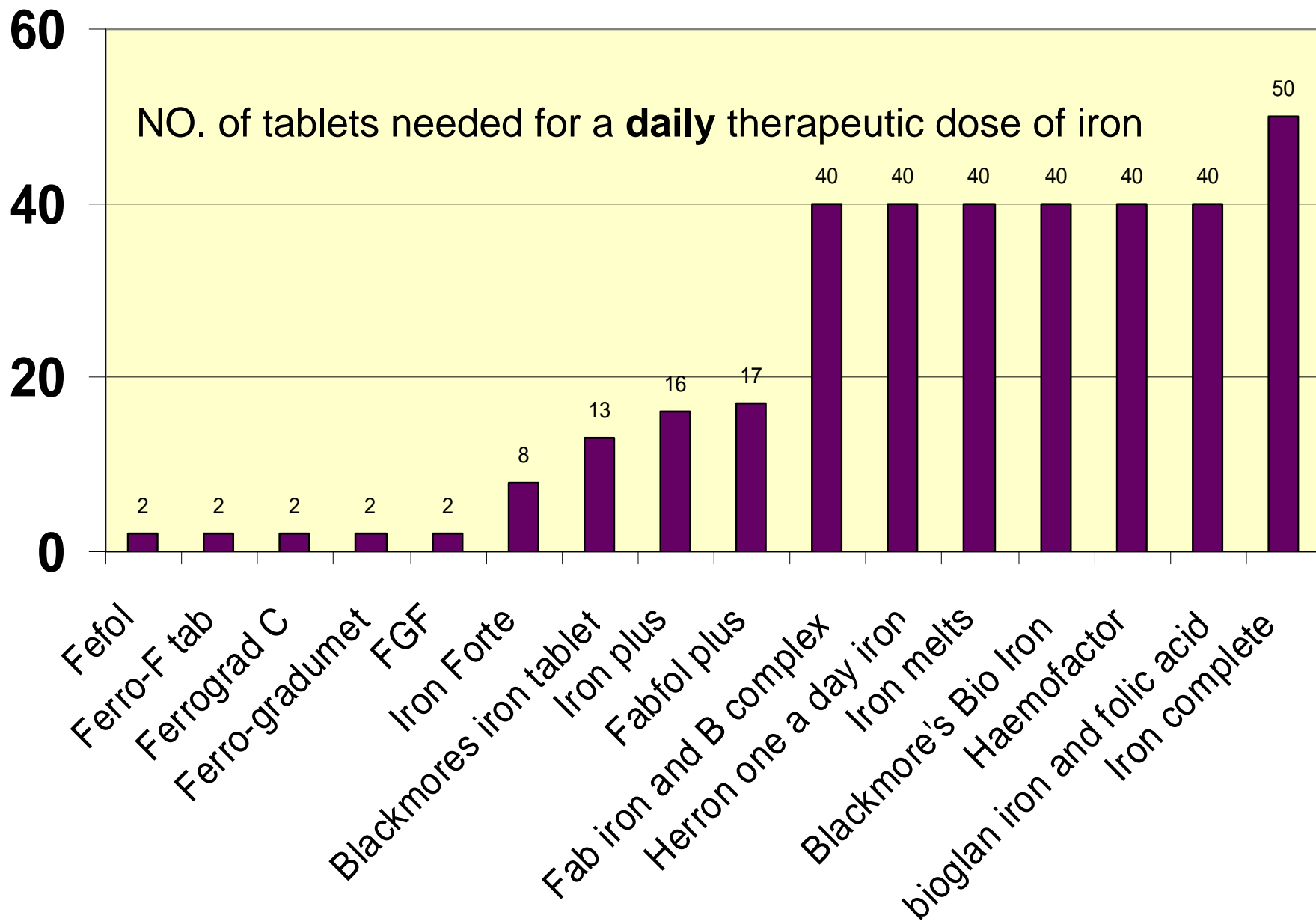
**\$18 a vial or
\$6 for iron
polymaltose**



Iron Quiz

🔴 How many iron tablets would you need to take to get a daily therapeutic dose of iron to treat IDA (200mg of elemental iron)?





Pharmacy “Survey”



🔴 27 Adelaide pharmacies visited



🔴 Asked for advice on iron therapy:

“GP said I was anaemic and low in iron. He told me to get some iron tablets”

🔴 26% (7/27) gave inappropriate advice

🔴 Preparations with too little iron



🔴 Also asked:

“ I don’t like large tablets, can you recommend something easy to swallow?”





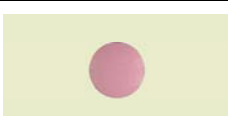

🔴 60% gave inappropriate advice

🔴 Too little iron eg. Clements liquid, iron melts etc



Laminated A4 Table

Oral preparations for the treatment of iron deficiency available in Australia*

NAME (Manufacturer)	TABLET (Actual size)	FORMULATION	ELEMENTAL IRON CONTENT	OTHER ACTIVE INGREDIENTS	**MIMS 2006 PRICE GUIDE
FERRO-GRADUMET (Abbott)		325 mg Ferrous Sulphate Controlled release tablets	105 mg	nil	\$6.56 30 tablets
FERROGRAD C (Abbott)		325 mg Ferrous Sulphate Controlled release tablets	105 mg	Vitamin C 562 mg	\$8.16 30 tablets
FGF (Abbott)		250 mg Ferrous Sulphate Controlled release tablets	80 mg	Folic acid 300 mcg	\$3.92 30 tablets
FEFOL (Pharm-a-care)		270 mg Ferrous Sulphate Controlled release capsules	87 mg	Folic acid 300 mcg	\$9.95 30 tablets
Ferro-f-tab (AFT pharmaceuticals)		310 mg Ferrous Fumarate Non-controlled release tablet	100 mg	Folic acid 350 mcg	\$9.47 60 tablets PBS listed August 2006
FERRO-LIQUID (AFT pharmaceuticals)		250 mL bottle Ferrous Sulphate Oral liquid	30 mg / 5 mL	nil	\$16.00 250 ml bottle

The usual **ADULT** dose for treatment of iron deficiency anaemia is 1-2 tablets per day of any of the above preparations (around 60-200 mg of elemental iron daily). *Many other iron supplements are available but they rarely contain more than 5 mg of elemental iron per tablet & are not suitable. The exception is ELEVIT (Bayer), a pregnancy & breast-feeding multivitamin that contains 60 mg of elemental iron as Ferrous Fumarate (non-controlled release) & 800 mcg of Folic acid (*\$22.45 for 30 tablets). **The cost of OTC medications is not regulated & the actual price may vary.

Reverse Side



Patient Information

Possible side effects of iron tablets

- While side effects occur only in some people, they can be a nuisance. They may include feeling sick (nausea), upset stomach, stomach cramps, constipation and diarrhoea. Side effects often improve or disappear as your body adjusts to the iron tablets. **It is normal for iron tablets to make your stools (faeces) turn black.**
- Tell your doctor if side effects are a problem. Your doctor will advise how to reduce the side effects and also recommend the lowest dose that is needed in your case. When anaemia is present (especially if severe) and iron tablets cannot be tolerated, intravenous iron (through a drip) may be needed. This is usually done in consultation with a specialist (eg haematologist). However, this is rarely needed as the following suggestions are usually effective

Ways to ease side effects

- If your doctor prescribes more than one iron tablet a day, increase the dose step by step. Take one tablet a day for a few days then increase by one tablet every few days until the prescribed dose is reached. Spread the tablets throughout the day by taking one at a time.
- If constipation is a problem, increasing your daily fluid and fibre intake can help. Discuss it with your doctor who may also suggest a stool (faeces) softener.



Ways to ease side effects continued...

- Taking iron tablets with food reduces side effects but also reduces the amount of iron absorbed. If you need to take your iron tablets with food to reduce stomach upset, it is best to avoid certain foods. The following foods should be avoided for at least 1 hour before & 2 hours after you take iron tablets: milk, cheese, yoghurt, tea, coffee, cocoa/ chocolate, cola, red wine, eggs, cereals & bran.
- Taking iron tablets before bed may reduce stomach upset in some people.
- Trying a different type of iron tablet may help.
- People who cannot tolerate iron tablets each day, can manage tablets less often - such as every second day or once or twice a week. This is still helpful although longer treatment will be needed. Discuss this approach with you doctor to ensure it is suitable in your case.
- There are many iron tablets/ tonics available with only very small amounts of iron in them. This is why they do not cause side effects not because they are more gentle on the stomach. These are generally not suitable and waste money. Discuss alternate tablets with your doctor.
- People who cannot tolerate iron tablets may tolerate iron in syrup form, which can temporarily stain the teeth. Brushing with baking soda will remove the stains. To reduce or help to prevent stains you can: mix each dose in water or fruit juice, take through a straw to help keep the iron liquid from getting on the teeth, place the dose with a dropper well back on the tongue and follow with water.

What you should know about iron tablets

This leaflet is for adults who have been prescribed iron tablets by their doctor. It explains their role in the treatment of low iron levels, with or without anaemia.

Selecting the right iron tablet

A variety of iron tablets/ tonics are available over-the-counter (without prescription) but most do not have enough iron in them. The most effective tablets have 60mg or more of 'elemental iron' per tablet such as:

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Ferro-Gradumet | <input type="checkbox"/> FerroGrad- C |
| <input type="checkbox"/> FGF | <input type="checkbox"/> FeFol |
| <input type="checkbox"/> Ferro-f-tabs | <input type="checkbox"/> Ferro-Liquid |

Your doctor can advise you which tablets are suitable in your case and how many to take. Your doctor's recommendation can be recorded in the space below: (or tick boxes)

Tablet: _____

Dose: _____



Intravenous iron preparations available in Australia

- **Iron polymaltose: Ferrosig or Ferrum H (Sigma & Aspen)**
 - Used in Australia since 1960- renal setting
 - Safety in non-renal setting and of total dose infusion?
 - Suitable for day patient total dose infusion (eg 7 hours)
- **Iron sucrose: Venofer (Aspen)**
 - Used in Europe since 1950's
 - 20 million doses in 1 million patients, 22 reports
 - 0.6 life threatening ADE per 1 million vials (over half million vials used annually in UK)
 - Not suitable for total dose infusion, bolus of 100-200mg, over 10 minutes 3 times per week (UK and NZ PI)
 - Not licensed or PBS listed for IDA in Australia outside CKD





Iron Sucrose

- Indications:
 - Intolerance of oral iron
 - Lack of compliance with oral iron
 - Malabsorption
 - Losses exceed amount absorbed
 - Rapid increase in iron stores required
 - (Renal failure)
- Contraindications:
 - First trimester
 - Anaemia not due to IDA or iron overload
 - History of hypersensitivity to iron preparations
 - Hx of Asthma, atopy, eczema (UK PI not Australian PI or NZ)
 - Hx of cirrhosis, hepatitis, elev transaminases x3





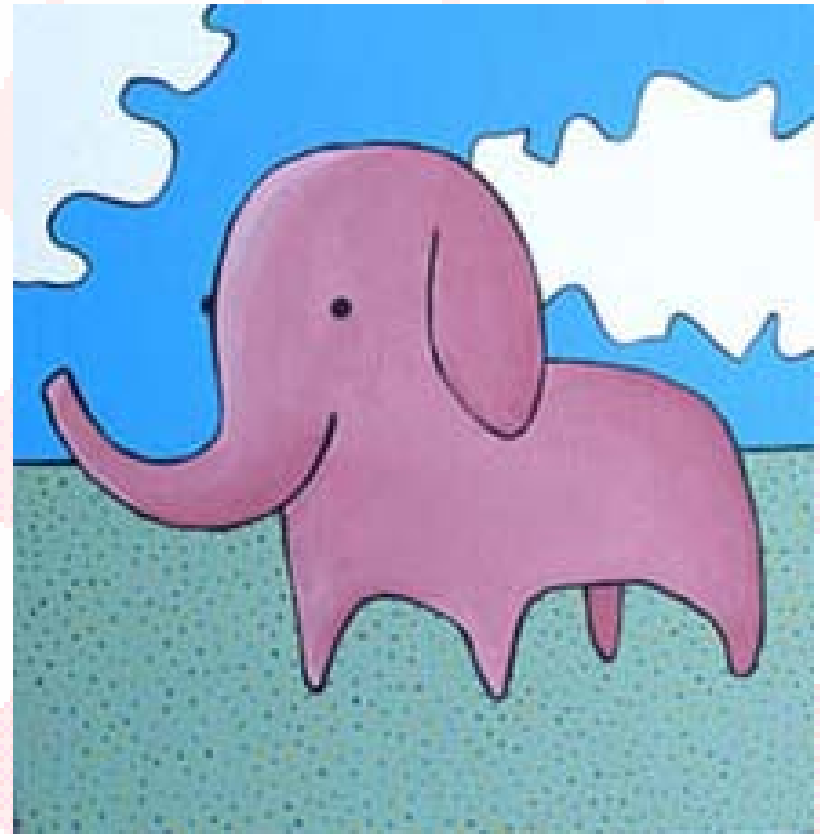
Iron Sucrose

- Side effects:
 - Taste disturbance
 - Hypotension, fever, shivering
 - Injection site reactions
- Pre-cautions:
 - Facilities for CPR available
 - Commence oral iron after 5 days



Where to start?

- Transfusion practice improvement - address anaemia management and the rest will follow?



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5 characteristics of changes that spread easily

(EM Rodgers)

- Clear advantage compared with the current way of going things
- compatible with the current system and values
- simplicity of the change and its implementation
- ease of testing before making a full commitment
- observability of change and its impact





Tools for Change

- Strength of evidence
- Relative advantage
- Simplicity
- Compatibility
- Trialability
- Observability



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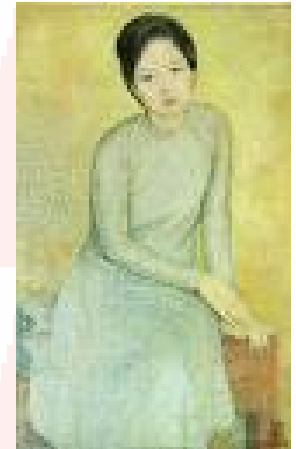
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Meet Mrs MA



- 37 year old mother of 3
- referred by obesity clinic with
- **Hb 83 and ferritin 6, MCV 65, B12 114** (no injections for 9/12) gastric bypass 2001, complicated by perforation requiring terminal ileal resection
- Hb now 75 and SOBOE, dizzy with prolonged standing
- menorrhagia last few years with flooding





Mrs MA

- 100mg IV iron sucrose (Venofer)
- B12 IM
- returned 3 days later for total dose iron polymaltose infusion Hb 78
- Hb 87 after 8 days , 108 after 3 weeks, 115 after 2 months
- started oral iron without side effects
- gynae clinic review





Where do we start?

- Expert working group –identify road blocks and develop consensus statements (particularly the role of iron polymaltose and iron sucrose and tools for implementation)
- Address the availability of iron sucrose at a National level
- Raise the profile of IDA as a problem and implications for individuals, health care resources, blood supply etc
- Need for more evidence to support best practice





Anaemia management in surgery

Consensus statement on the role of IV iron-
NATA: network for advancement of
transfusion alternatives

- 🔴 Large prospective randomised controlled trials are needed to evaluate the routine use of IV iron
- 🔴 Meanwhile implementation of some general good practice points is recommended





NATA: Good clinical practice points for surgical patients

Based on clinical experience of expert panel members

- Identify patients at risk of peri-op transfusion based on red cell mass, trigger, expected blood loss (Mercuriali's algorithm)
- In at risk patients check Hb and iron studies at least 30 days before scheduled surgery and B12 and folate if >60y
- If pre-op anaemia secondary to IDA (or ACD) consider treatment with IV iron
- Unexplained anaemia should always be considered as secondary to some other process and therefore elective surgery should be deferred until an appropriate diagnosis has been made
- Non anaemic patients with ferritin <100 might benefit from pre-op iron



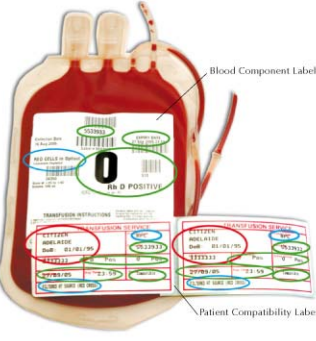
flippin' blood

examples

Verification of 'Right Patient - Right Blood'

A final patient identity check at the patient's side, by two responsible staff members is vital to ensure the right blood is given to the right patient. Refer to page 9 for checking procedure. **If there are any discrepancies detected during this process DO NOT PROCEED until they have been rectified and it is safe to do so.**

- Right Patient - full name, date of birth and / or medical record number.
- Right Blood Product - e.g. red cells, platelets, FFP or cryoprecipitate and any special requirements (e.g. leucodepleted, irradiated etc.)
- Right Pack - compatible blood group of patient and donor, identical blood donation number, expiry date and time.



Patient Identification

The patient must wear an ID band or alternative identification as per hospital policy. Some hospitals use a unique transfusion band which must also be worn by the patient and the number checked in addition to the ID band.



Blood Product Transfusion Report

Not all hospitals use a Blood Product Transfusion Report form. In which case, details to be checked are contained on the Patient Compatibility Label attached to the blood product.

Medical Order

Transfusion Administration Verification of 'Right Patient - Right Blood'

PATIENT IDENTIFICATION

- A final patient identity check at the patient's side before blood administration is vital to ensure the right blood is given to the right patient.
 - If there are any discrepancies detected during the checking process DO NOT PROCEED - contact the Transfusion Service Provider.**
- Note: One of the two people involved in the checking process must spike and hang the blood pack / product.*

POSITIVE PATIENT IDENTIFICATION

- Two staff members (as per hospital policy) shall be responsible for carrying out the identity check.
- The patient must be wearing an identification (ID) band* containing the correct patient details.
- Verify patient details by checking the ID band against the patient's medical record.
- The patient shall be positively identified by asking the patient to state / spell their surname, first name and date of birth (wherever possible) and make sure that these details are the same as on the patient's ID band. Special care should be taken for those patients who cannot state their names for whatever reason.
- Verification of patient identity should be checked with the parent / carer / spouse if the patient is unable to state his / her name and the carer is present.
- Some hospitals use a unique transfusion band which must also be worn by the patient and the number checked in addition to the ID band.

*Note: Alternative methods of patient identification such as photo ID or unknown patient unique identifier should only be used as per hospital policy.

RIGHT PATIENT

Check the Medical Order, Blood Product Transfusion Report**, Patient Identification Bands(s) and Patient Compatibility Label for the following and ensure they are identical / correct:

- Patient's Surname
- Patient's First Name(s)
- Date of Birth and / or Medical Record Number (or unknown patient unique identifier)

RIGHT BLOOD PRODUCT

Check the Medical Order, Blood Product Transfusion Report**, Blood Component Label and Patient Compatibility Label for the following and ensure they are correct:

- Product
- Special Requirements if required - e.g. leucodepleted, irradiated, CMV negative, HLA matched or washed. See pages 10 and 11.

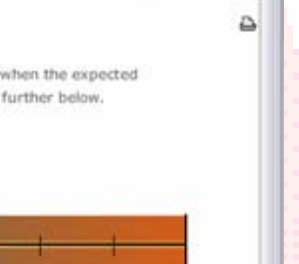
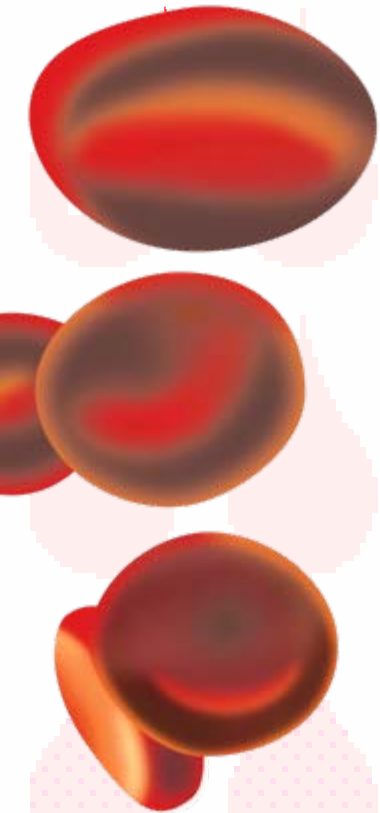
RIGHT PACK

Check the Blood Product Transfusion Report**, Blood Component Label and Patient Compatibility Label for the following and ensure they are identical / compatible:

- Blood Group of Patient and Donor
- Blood Donation / Batch Number
- Expiry Date and Time

**Note: Not all hospitals use a Blood Product Transfusion Report form. In which case, details to be checked are contained on the Patient Compatibility Label attached to the blood product.





http://www.bloodsafelearning.com.au - flash_file - Microsoft Internet Explorer

ModuleOne Risks and benefits logged in: David Peterson

Introduction
...to this e-learning program

Blood
A priceless gift

ModuleOne
Risks and benefits

Learning objectives
Overview
A valuable resource
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Dosage
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Communicating risks
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Summary
Assessment

ModuleTwo
Pre-transfusion samples

ModuleThree
Picking up blood

Submit feedback

BloodSafe e-learning

Professional practice

"Don't focus on the transfusion, focus on the patient's problem." - Prof James Ishister

Press play to view the video



1:31 / 3:47

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Risk versus benefit

It is important that blood products are given only when clearly indicated - when the expected benefits are likely to outweigh the potential hazards. This can be explored further below.

Benefit Risk

70g/L 100g/L

Why NOT transfuse? Maybe transfuse? Why transfuse?

70-100 g/L. Maybe transfuse? - When the haemoglobin is between 70 and 100 g/L, the decision to transfuse should be supported by other factors, such as the need to relieve clinical signs and symptoms of impaired oxygen delivery, or for a surgical procedure associated with significant blood loss.

For patients on chronic transfusion regimens or marrow suppressive therapy, it may be appropriate to maintain the haemoglobin above 80 g/L to control anaemia related symptoms.

Move the slider between the three sections of the haemoglobin grid to assist you with the decision to transfuse a **haemodynamically stable adult**.

Click here to view [Prof James Ishister and Dr Ross Wilson](#) discussing risk and benefit

<<PREV NEXT>>

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Health Service

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Iron Deficiency Anaemia- Who Cares???



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- 📌 BloodSafe transfusion nurse consultants
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Government of South Australia
Central Northern Adelaide
Health Service

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Government of South Australia
Department of Health





Questions?



"Iron deficiency, I bet that's why all of my clothes are wrinkled"



Meet Mrs DS

- ◆ 49 y.o 8 children
 - ◆ long standing IDA
 - ◆ SOBOE for a few months
 - ◆ presented with chest infection to ED
 - ◆ Hb of **75g/L** transfused 4 units & discharged on oral iron
 - ◆ Hb **87g/L** 6 months later (feeling tired)
 - ◆ Hb **121g/L** after 3 weeks of oral iron





Opportunities

- Identification/treatment of IDA in primary care
- Consumer information about IDA
- Transfusion in IDA vs iron therapy
- Unit at a time when transfusing
- Replace iron stores with adequate dose
- Consumer information about iron tablets

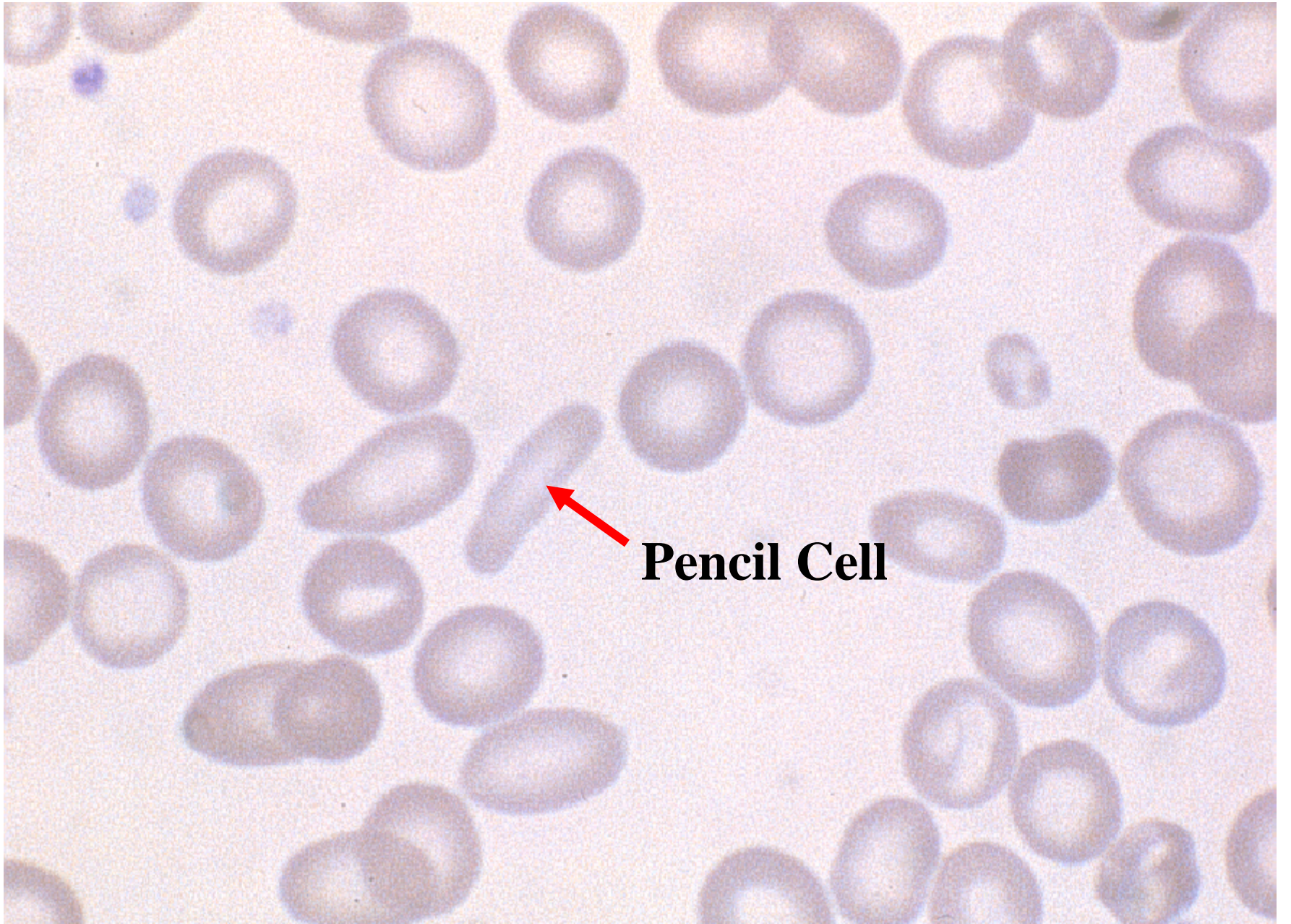


Meet Ms PS



- 32 year lady
- Hb **74g/L** when attending PAC for apronectomy
 - gastric bypass 1999
 - Hb 80g/L 12 months ago
 - blood matched for top up prior to surgery but later surgery cancelled
 - started on oral iron and referred to haematology OPD
 - Hb increased 10g/L in 4 weeks then 20g/L in 3 weeks with normal Hb in 6 weeks





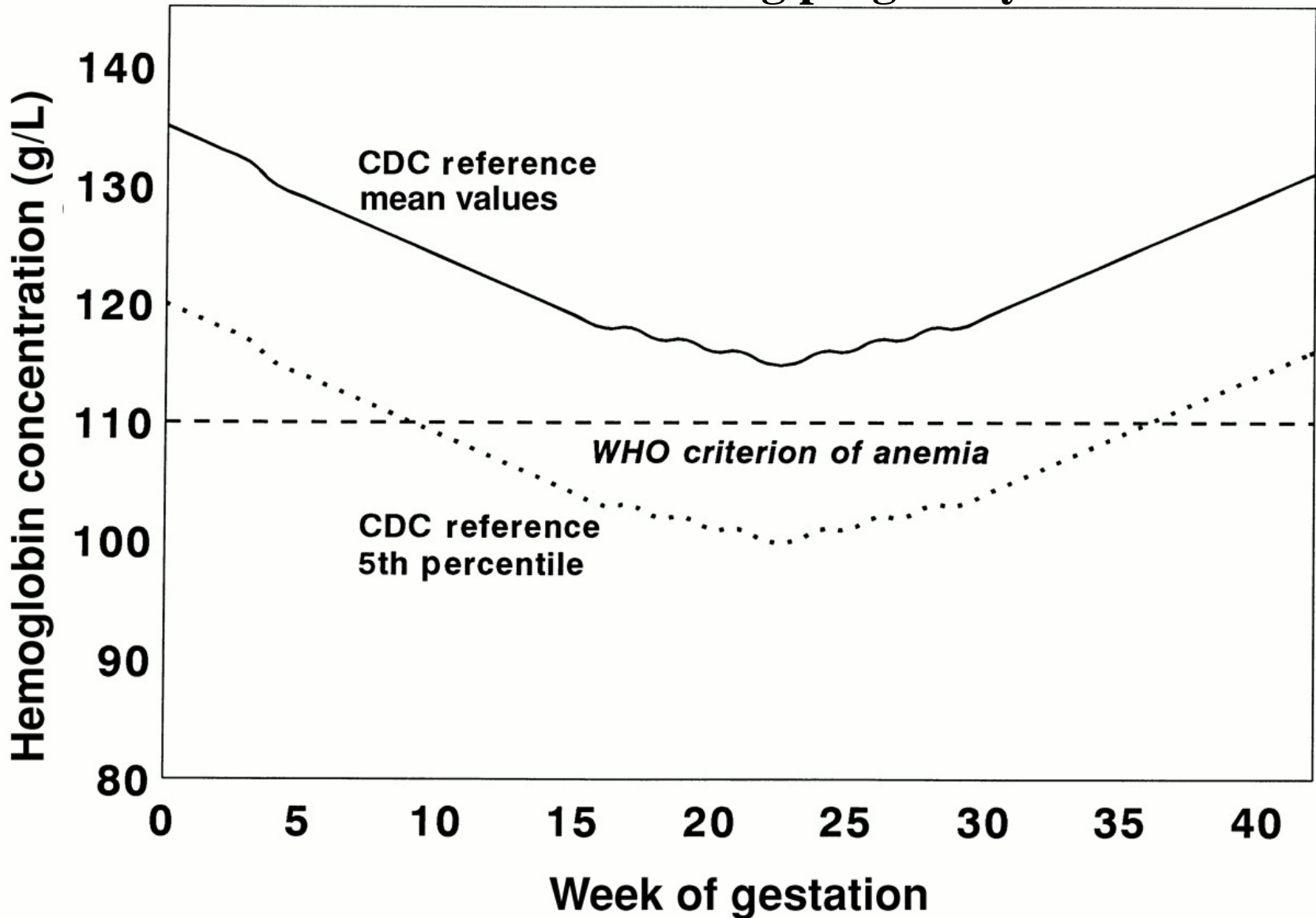
Pencil Cell



Iron Deficiency

- Pre-pregnancy
 - Significance of ID without IDA and need to consider supplementing female blood donors
- Pregnancy
 - Routine supplementation –concerns re haemoconcentration (2006)
 - Treatment of IDA- significance of mild anaemia (2007)
- Post partum (2004)

Hb levels during pregnancy





IV iron post partum +/- EPO

- Wagstrom et al (Sweden) 2007
 - 60 women with Hb <80g/L within 72 hours randomised to IV iron alone, IV iron with 2 different EPO doses
 - 450mg Venofer total D0 and D3 then 100mg oral iron daily after a week
 - Mean increment in Hb 18g/L in 1 week and 28g/L after 2 weeks same in all groups

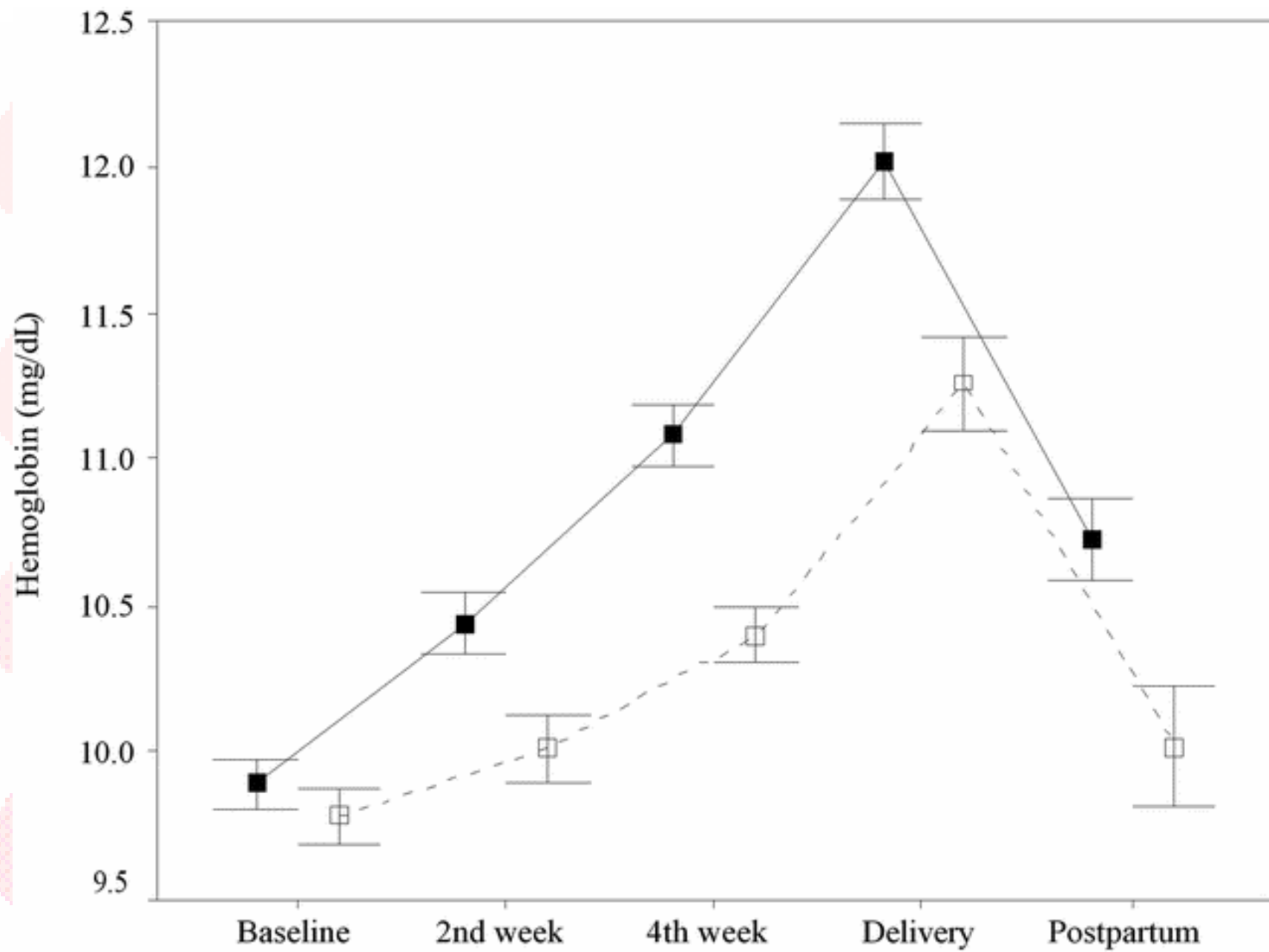




IV iron during pregnancy

- Al et al (Turkey) 2005
 - Women with Hb levels between 80-105g/L and ferritin less than 13 in 26th-34th week of gestation
 - Randomised to oral iron 300mg or venofer total dose (500-900mg over 5 days, 200mg over 20-30 mins) with 45 in each group







8 years experience with IV iron sucrose

- Perewusnyk et al 2002 (Switzerland)
 - 1992-2000 500 patients received 2500 ampoules during pregnancy or post partum
 - 1.5% side effects per patient and 0.36 per ampoule (flushing and rash)
 - None serious
 - When Hb falls below 100g/L IV iron used primarily



Future possibilities

- Other Australian experience with Venofer in pregnancy and post-partum?
 - Survey use, infusion protocols and adverse event data
- Contact international experts for current practice
- Local/national guidelines for use of IV iron in pregnancy/post partum (also gynae patients)?
- License for use in IDA and updated product information including bolus administration of up to 200mg?
- DoH funding for trial of nurse coordinator with specialist input???





Soluble TF receptor

- Responsible for the uptake of transferrin bound iron by cells in BM
- serum concentrations reflects number of receptors in BM
- Increased with increased red cell turnover haemolytic anaemia and thal
- increased in IDA
- not affected by inflammation but not readily available





Impact of Preoperative Anaemia on Transfusion Likelihood

	Females	Males
Frequency of Preop Anaemia	10% (9%) 7/73	31% (36%) 14/45
Transfusion Rate	100% 7/7	64% 9/14

2-3 x increase in transfusion rate

Figures in brackets from Vic/Tas



ADE (SHOT)

Life threatening ADEs

- 🔴 10 per million with transfusion versus 0.6 per million with iron sucrose

Deaths

- 🔴 4 per million with transfusion versus 0.1 with iron sucrose



Iron deficiency in adults

a comprehensive management guide

This article is for the general interest of *licenced physicians (medical practitioners)* only. It is NOT intended to be used or relied on by them for any diagnostic or therapeutic purpose. It is NOT for any use whatever by any other person, nor intended in any way to be taken as advice for any specific medical or health condition.

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- [What is the problem?](#)
- [How does it present?](#)
- [How common is it?](#)
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HOME



NEXT

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Management of Iron Deficiency

- 🔴 **Determination of the underlying cause**
- 🔴 **Correction of the underlying cause**
- 🔴 **Iron therapy (even if transfused)**
- 🔴 **Dietary advice**





IDA in hospitalised patients

- Retrospective casenote review of pts with code of IDA (45% included)
- 119 pt in 2.5 years in 1 hospital in Vic
 - of 66 transfused, 17 then had IV iron, 25 oral iron, 24 none
 - of 53 not transfused, 9 had IV iron, 32 oral, 12 none
 - 55% managed according to proposed guidelines (9% in cardiac patients)

Gibson et al IMJ 2006