

# Alternatives to blood transfusion

*suitable for haematology patients*

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# Patient Blood Management

- Patient Blood Management (PBM) is a multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion.
- NHS Blood and Transplant (NHSBT)  
Department of Health
- National Blood Transfusion Committee

# Reasons to Reduce Blood Exposure:

- Limited resources
  - Increasing demands
  - New donor selection criteria: ↓ donor panels
  - **Rare blood group**
  - **Multiple red cell antibodies**
- To reduce risks
  - Errors
  - Transfusion-transmitted infections (TTIs)
  - Immunological complications

# Why haematological patients require transfusion

- Bone marrow failure
  - Disease or treatment
- Peripheral cytopenias
  - Reduce production or increase destruction of peripheral blood cells

# Indication for RBC transfusion

	National (N=4328)	
A. Symptomatic anaemia	47%	2048
• Mild (Chronic fatigue, loss of energy)	20%	844
• Moderate (Palpitations; Shortness of breath on exertion etc.)	22%	948
• Severe (Shortness of breath at rest; symptoms of ischaemic heart disease, such as chest pain; hypotension or tachycardia unresponsive to fluid resuscitation; cardiac failure)	4%	178
• Unspecified	2%	78
B. Hb level less than the local threshold	23%	1005
C. Chronic transfusion programme	26%	1114
D. Cannot determine reason for transfusion	3%	117
Not stated	1%	44

**Attention : each participant had to tick one indication therefore it is possible that were patients that had more than one reason to be transfused.**

**i. e a patient in a chronic transfusion programme that also had symptoms**

# NG 24

- Alternatives to blood transfusion for patients having surgery
- Intravenous and oral iron
  - **ANAEMIA PATHWAYS**
- Cell salvage and Tranexamic acid
  - ***Is this applicable to haematology?***

# Alternative to blood transfusion

- Treat the underline disease
  - Treat the underline cause of anaemia or thrombocytopenia
    - Iron
    - B12
    - Folate
    - Steroids(Autoimmune haemaolytic anaema)
    - **Eltrombopag**
      - ITP
      - **Possible Aplastic anaemia(currently under trial in Europe)**
- Hydroxycarbamide (SS disease)

# Alternatives

- Epo
  - Renal failure
  - Chemotherapy induced anaemia
  - MDS



# Use of RBC units in MDS patients in UK

150.000-200.000 units RBC per year.

# Incidence

Per 100,000 population

United States: 3.6

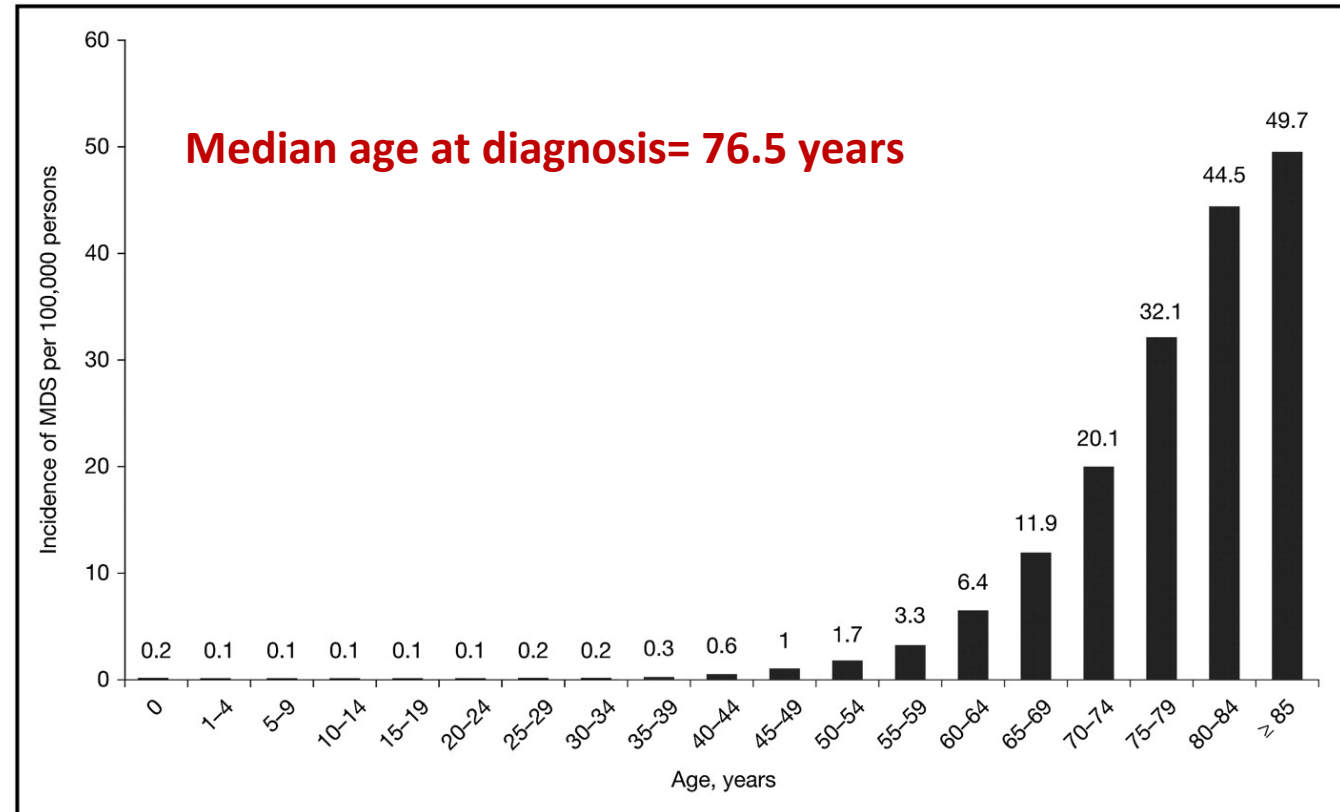
United Kingdom: 3.6

Germany: 4.1

Sweden: 3.6

France: 3.2

Japan: 1.0.



•**36.3/100,000 in 80 and above age group**

**10,000 new cases of MDS each year**

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# Clinical presentation

## Low and intermediate risk MDS (70%)

**65%**

**anaemia**

±mild thrombocytopenia

±mild neutropenia

**57%** Hb <100g/L

**27%** Hb <80g/L

Thrombocytopenia: <100.000x10<sup>9</sup>L

Neutropenia: <1.500x10<sup>9</sup>L

### Symptoms

Chronic fatigue

Shortness of breath

Rarely bruising and bleeding, recurrent infections

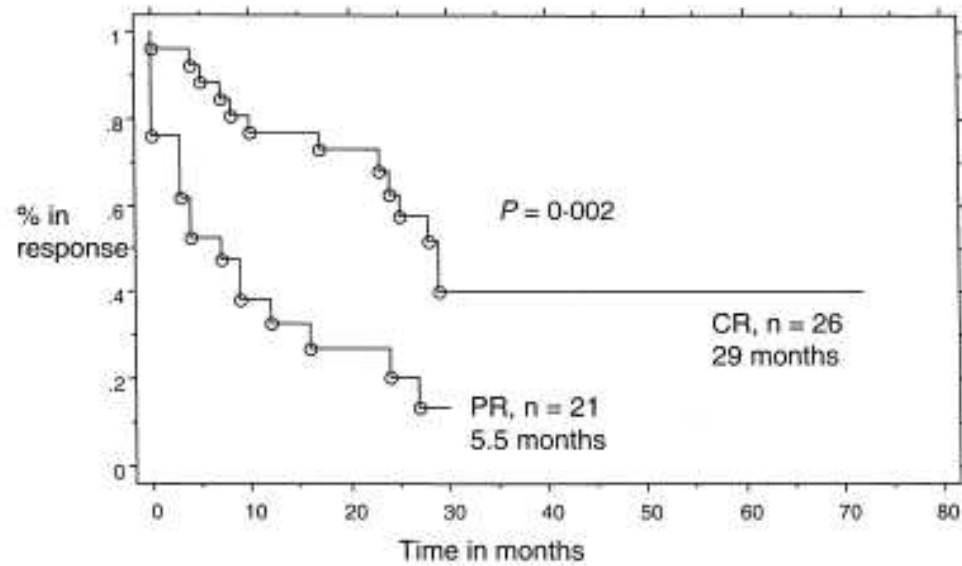
**<5%** present with

Isolated thrombocytopenia or

Isolated neutropenia

# Duration of response in responding patients

*A validated decision model for Epo + G-CSF in MDS*



# Alternatives to blood transfusion for MDS patients

- EPO
  - Low risk patients with MDS(check erythropoietin level)
  - EPO +GCSF for patient with RARS
- Oral lenalidomide for patients with 5q- syndrome (transfusion dependant)
- Azacitidine
  - SC for patients with High Risk MDS
  - Oral Aza trial for transfusion dependant patients with low risk MDS and severe thrombocytopenia
- Definitive treatment
  - Transplantation
  - Curative chemotherapy for selected patients

# Tranexamic acid

- Trauma patients and surgery
- ITP
- Congenital bleeding disorders
- Thrombocytopenic patients with nasal and PV bleeding
- Patients on anti-platelet agents and bleeding
- TREATT
  - Randomised control clinical trial of tranexamic acid(oral or IV) versus placebo for AML