Abnormal FBC Results Guidance
This guidance has been developed from published guidance, in
collaboration with local Haematologists and Gastroenterology, in
response to frequently asked questions on interpreting FBCs.

This guidance is to assist GPs in decision making and is not intended to
replace clinical judgment.

You may also want to seek further specific guidance using the ‘Advice
and Guidance’ service.

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Haemoglobin
  - Anaemia
  - Polycythaemia

White Cell Count
  - Neutrophils
  - Lymphocytes
  - Eosinophils
  - Monocytes

Platelets

Abnormal FBC in Adults

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NB – Abnormalities affecting more than one cell type are more likely to be due to bone marrow causes rather than reactive.
Always consider earlier referral when the patient is unwell.

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Produced in collaboration with local Haematologists and Gastroenterology
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Pathway created by Sarah Morgan & Alex Warner
and approved by Camden PEC March 2013
Updated by Craig Seymour June 2015
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Polycythaemia

Men: Hb > 185 Hct > 0.52
Women: Hb > 160 Hct > 0.48

May be associated with increased WCC & Platelets + Basophils

Probable primary polycythaemia (Ferritin usually low)

Causes of Polycythaemia

Apparent
Reduced plasma volume
Common in obese men, associated with smoking, diuretics, alcohol, hypertension, stress, dehydration
At risk of occlusive vascular episodes

Absolute
1° Polycythaemia (Rubra Vera)
(92% are JAK2 +ve)
2° Polycythaemia
Hypoxia
(COPD, Heart disease, smoking)
Abnormal EPO production
(Renal & liver tumours, fibroids)

Probable secondary polycythaemia (Ferritin usually normal)
Modify known associated lifestyle factors + Monitor FBC

WCC & Platelets normal

Check history:
Drugs, Travel, Atopy
Repeat FBC + Blood Film within 1-2wks
Consider:
ESR, CRP, IgE, ANA, Chest X-Ray
Stool for OCP
Serology for Strongyloides + relevant to travel history (eg Schistosomiasis)

Eosinophilia

Eosinophils > 0.44 x 10^9/L

Check history:
Drugs, Travel, Atopy
Repeat FBC + Blood Film within 1-2wks
Consider:
ESR, CRP, IgE, ANA, Chest X-Ray
Stool for OCP
Serology for Strongyloides + relevant to travel history (eg Schistosomiasis)

Eosinophilia causes to consider:
Asthma / allergic disorders
Infections
(es. Parasitic eg. Schisto, also malaria, TB, fungal, recovery from any infection)
Drugs (eg. Penicillin, Allopurinol, Amitriptyline, Carbamazepine)
Smoking
Connective tissue disorders (eg. RA, PAN, Churg-Strauss)
Endocrine (eg. Addison’s)
Skin disease (Eczema, psoriasis, dermatitis herpetiformis, erythema multiforme)
Malignancy (eg. Lymphoma, Leukaemia, CA lung/stomach)
Löffler's syndrome, Endocarditis, Post-splenectomy, Irradiation

Refer if:
Raised Hct >0.52 males + Past history of arterial or venous thrombosis
>0.48 females Splenomegaly, Pruritus, Elevated WCC or Platelets
(uncuffed blood samples)
Or if persistent, unexplained raised Hct above these levels on at least 2 occasions over 4 weeks apart.

Urgently Refer: (2wks)
Hb >200 g/l / Hct > 0.60 (in absence of chronic hypoxia)

Raised Hb in association with:
Recent arterial or venous thrombosis
Neurological Symptoms
Visual Loss
Abnormal bleeding
**Thrombocytopenia**

- Viral infection including EBV (usually resolves within few weeks)
- Also HIV, Malaria, TB
- Drugs (NSAIDs, Heparin, Digoxin, Quinine, anti-epileptics, antipsychotics, PPIs)
- Alcohol
- Malignancy
- Liver & Renal disease
- Aplastic anaeamias, B12/Folate deficiency
- Autoimmune / ITP / SLE

**Platelets**

- Normal: 150 - 400 x10^9/L

**Thrombocytosis**

- If asymptomatic repeat after 4-6 wks
- Check for hepato/splenomegaly or neuro symptoms
- Check CRP, Blood film, Ferritin

- Thrombocytopenia
  - Often artefact
  - Repeat with blood film

  - < 150 x10^9/L
    - Urgent Outpatient Referral
      - If < 20 x10^9/L or any bleeding Refer for same day assessment
      - Otherwise Refer if persists > 4-6 weeks and unexplained
  - 50-100 x10^9/L
    - If other cytopenia, splenomegaly, lymphadenopathy, pregnancy, upcoming surgery Urgent Outpatient Referral
  - 100-150 x10^9/L
    - Repeat monthly & Refer if progressive decrease, other FBC abnormalities or if unwell

  - > 400 x10^9/L
    - Check for hepato/splenomegaly or neuro symptoms
    - Check CRP, Blood film, Ferritin
    - Thrombocytopenia
    - > 600 x10^9/L
      - Or Splenomegaly
      - Or Recent thrombosis or at high risk thromboembolism or CVD

- Urgent Referral:
  - Abnormal Bleeding
  - Neurological symptoms
  - Plt > 1000 x10^9/L

  - < 50 x10^9/L
    - Urgent Outpatient Referral
  - 50-100 x10^9/L
    - If other cytopenia, splenomegaly, lymphadenopathy, pregnancy, upcoming surgery Urgent Outpatient Referral
  - 100-150 x10^9/L
    - Repeat monthly & Refer if progressive decrease, other FBC abnormalities or if unwell

  - < 150 x10^9/L
    - Urgent Outpatient Referral

- Otherwise Refer for same day assessment

**Thrombocythemia**

- 1° - Myeloproliferative (likely if splenomegaly and plt >1000)
- 2° - More common
  - Reactive
    - (Infection, inflammation, haemorrhage, exercise, tissue damage, post-surgery, haemolysis)
  - Malignancy
  - Hyposplenism/Splenectomy
  - Iron deficiency

- No further action required

- > 450 x10^9/L
  - Urgently Refer:
    - Abnormal Bleeding
    - Neurological symptoms
    - Plt > 1000 x10^9/L

  - > 600 x10^9/L
    - Or Splenomegaly
    - Or Recent thrombosis or at high risk thromboembolism or CVD

- Or Urgent Outpatient Referral
  - Other symptoms suggestive malignancy
  - Other significantly abnormal FBC indices

- Treat 2° causes
  - Check Hb/Ferritin
  - Polycythaemia?

- Refer haematology if persistent unexplained > 600 x10^9/L
  - On at least 2 occasions
  - 4-6 weeks apart

- Or 450-600 x10^9/L
  - In association with other FBC abnormalities