



Complete Summary

GUIDELINE TITLE

Guideline for the diagnosis, investigation and management of polycythaemia/erythrocytosis.

BIBLIOGRAPHIC SOURCE(S)

McMullin MF, Bareford D, Campbell P, Green AR, Harrison C, Hunt B, Oscier D, Polkey MI, Reilly JT, Rosenthal E, Ryan K, Pearson TC, Wilkins B, General Haematology Task Force of the British Committee for Standards in. Guidelines for the diagnosis, investigation and management of polycythaemia/erythrocytosis. Br J Haematol 2005 Jul;130(2):174-95. [151 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- [February 28, 2008, Heparin Sodium Injection](#): The U.S. Food and Drug Administration (FDA) informed the public that Baxter Healthcare Corporation has voluntarily recalled all of their multi-dose and single-use vials of heparin sodium for injection and their heparin lock flush solutions. Alternate heparin manufacturers are expected to be able to increase heparin products sufficiently to supply the U.S. market. There have been reports of serious adverse events including allergic or hypersensitivity-type reactions, with symptoms of oral swelling, nausea, vomiting, sweating, shortness of breath, and cases of severe hypotension.

COMPLETE SUMMARY CONTENT

** REGULATORY ALERT **

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SCOPE

DISEASE/CONDITION(S)

Polycythemia (polycythemia vera, erythrocytosis)

GUIDELINE CATEGORY

Diagnosis
Management
Treatment

CLINICAL SPECIALTY

Hematology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide a rational approach to the diagnosis, investigation and management of patients with an erythrocytosis, including recommendations on the management of polycythaemia vera (PV), apparent and relative erythrocytosis, idiopathic erythrocytosis and the secondary erythrocytoses because of high oxygen affinity haemoglobin, hypoxia because of chronic lung disease, congenital cyanotic heart disease and postrenal transplantation

TARGET POPULATION

Patients with erythrocytoses, including polycythaemia vera

Note: This guideline is not intended to apply to children.

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

Stage 1 Investigations

1. History and examination
2. Complete blood count/film
3. *Jak2 mutation*

4. Serum ferritin
5. Liver and kidney function tests

Stage 2 Investigations

1. Red cell mass
2. Arterial oxygen saturation
3. Abdominal ultrasound
4. Serum erythropoietin level
5. Bone marrow aspirate and trephine
6. Cytogenetic analysis
7. Erythroid burst-forming unit (BFU-E) culture

Stage 3 Investigations

1. Arterial oxygen dissociation
2. Sleep study
3. Lung function studies
4. Gene mutations *EPOR*, *VHL*, *EGLN1* (also known as *PHD2*)

Treatment/Management

Polycythaemia Vera

1. Venesection with or without antiplatelet therapy (aspirin, dipyridamole)
2. Cytoreductive therapy
3. Thrombotic risk assessment
4. Management of PV during pregnancy, including use of low-dose aspirin and low-molecular-weight heparin

Apparent Erythrocytosis

1. Confirmation of persistent elevation in hematocrit
2. Control of associated factors (smoking, obesity, hypertension)
3. Venesection

Idiopathic Erythrocytosis

1. Venesection
2. Cytoreductive therapy (contraindicated)

High Oxygen Affinity Hemoglobins

1. Venesection
2. Partial exchange transfusion

Hypoxic Pulmonary Disease

1. Evaluation for hypoxic pulmonary disease
2. Long-term oxygen therapy
3. Venesection

4. Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor antagonists

Cyanotic Congenital Heart Disease

1. Management of primary heart disease
2. Venesection
3. Iron replacement under close supervision

Postrenal Transplant Erythrocytosis (PTE)

1. Avoidance of extracellular volume reduction
2. (ACE) inhibitors or angiotensin receptor antagonists
3. Venesection

MAJOR OUTCOMES CONSIDERED

- Rate of platelet, hemoglobin, and hematocrit control
- Incidence of thrombosis and hemorrhage
- Incidence of hematologic and nonhematologic malignancies (transformation to acute leukemia and myelofibrosis)
- Incidence of other treatment side effects
- Mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Medline, CANCERLIT and EMBASE were systematically searched for publications in English from 1966 to June 2004. Relevant literature in group members' own collections and older references generated from initial papers were also examined. The Cochrane controlled trials register and the Cochrane optimal search strategy for randomised controlled trials was searched but no additional material was identified. Randomised trials and series of patients and single case reports were considered if appropriate. Meeting abstracts were not included in the systematic search strategy.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Classification of Evidence Levels

Ia: Evidence obtained from meta-analysis of randomised controlled trials

Ib: Evidence obtained from at least one randomised controlled trial

IIa: Evidence obtained from at least one well-designed controlled study without randomization

IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study*

III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies

IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

*Refers to a situation in which implementation of an intervention is out of the control of the investigators, but an opportunity exists to evaluate its effect

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline group was selected to include United Kingdom (UK)-based medical experts. The drafting group met (real or virtual) on four occasions and communicated by e-mail. Each member of the group was allocated responsibility for the preparation of a selected component of the first draft.

The group leader synthesised the draft components, which were subsequently revised by consensus. No recommendations are included for which full consensus was not achieved.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Classification of Grades of Recommendations

Grade A: Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing specific recommendation (evidence levels Ia, Ib)

Grade B: Requires the availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation (evidence levels IIa, IIb, III)

Grade C: Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality (evidence level IV)

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline was reviewed by sounding boards, and British Committee for Standards in Haematology (BCSH) and comments were incorporated where appropriate.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendation grades (**A-C**) and levels of evidence (**Ia-IV**) are defined at the end of the "Major Recommendations" field.

Diagnosis of Erythrocytosis

Patients with a persistently raised venous haematocrit (Hct) (>0.52 males, >0.48 females for >2 months) should, in general, be investigated by measurement of their red cell mass (RCM).

Red Cell Mass and Terminology

- Red cell mass (RCM) should be expressed in relation to surface area as recommended by the International Committee for Standardisation in Haematology (ICSH).
- The term 'relative erythrocytosis' should be reserved for states of dehydration.

- Apparent erythrocytosis should be used for those individuals who have a raised venous haematocrit but with a RCM within the reference range.

Investigation of Absolute Erythrocytosis

The classification of absolute erythrocytoses is shown in the table below. Once an absolute erythrocytosis has been confirmed it is desirable to identify the underlying aetiology, although this may not be possible either initially or after prolonged investigation. Nevertheless, the starting point is knowledge of the underlying causes of a secondary erythrocytosis (see table "Classification of the Absolute Erythrocytoses" below) and the diagnostic criteria of polycythaemia vera (PV) (see table "Modified Diagnostic Criteria for Polycythaemia Vera" below). Frequently, it can be difficult to prove conclusively that an erythrocytosis is either secondary or primary and dual pathologies resulting in an erythrocytosis should be considered, especially in the elderly.

Primary erythrocytosis

Polycythaemia vera

Secondary erythrocytosis

Congenital

High oxygen-affinity haemoglobin

2,3-Biphosphoglycerate mutase deficiency

Erythropoietin receptor-mediated

Chuvash erythrocytosis (VHL mutation)

Acquired

EPO-mediated

Hypoxia-driven

Central hypoxic process

Chronic lung disease

Right-to-left cardiopulmonary vascular shunts

Carbon monoxide poisoning

Smoker's erythrocytosis

Hypoventilation syndromes including sleep apnoea (high-altitude habitat)

Local renal hypoxia

Renal artery stenosis

<ul style="list-style-type: none"> End-stage renal disease Hydronephrosis Renal cysts (polycystic kidney disease)
Pathologic EPO production
<ul style="list-style-type: none"> Tumours <ul style="list-style-type: none"> Hepatocellular carcinoma Renal cell cancer Cerebellar haemangioblastoma Parathyroid carcinoma/adenomas Uterine leiomyomas Pheochromocytoma Meningioma
Exogenous EPO
<ul style="list-style-type: none"> Drug associated <ul style="list-style-type: none"> Treatment with androgen preparations Postrenal transplant erythrocytosis Idiopathic erythrocytosis

EPO, erythropoietin

Table: Modified Diagnostic Criteria for Polycythaemia Vera

JAK2-positive polycythaemia vera	
A1	High haematocrit (>0.52 in men, >0.48 in women) OR raised red cell mass (>25% above predicted)*
A2	Mutation in JAK2
<i>Diagnosis requires both criteria to be present</i>	
JAK2-negative polycythaemia vera	
A1	Raised red cell mass (>25% above predicted) OR haematocrit \geq 0.60 in men, \geq 0.56 in women.
A2	Absence of mutation in JAK2
A3	No cause of secondary erythrocytosis
A4	Palpable splenomegaly

A5	Presence of an acquired genetic abnormality (excluding <i>BCR-ABL</i>) in the haematopoietic cells
B1	Thrombocytosis (platelet count $>450 \times 10^9$ /liter)
B2	Neutrophil leucocytosis (neutrophil count $>10 \times 10^9$ /liter in non-smokers; $>12.5 \times 10^9$ /liter in smokers)
B3	Radiological evidence of splenomegaly
B4	Endogenous erythroid colonies or low serum erythropoietin
<i>Diagnosis requires A1 + A2 + A3 + either another A or two B criteria</i>	

*Dual pathology (co-existent secondary erythrocytosis or relative erythrocytosis) may rarely be present in patients with a *JAK2*-positive myeloproliferative disorder. In this situation, it would be prudent to reduce the haematocrit to the same target as for polycythaemia vera.

The diagnostic criteria will alter the number and sequence in which investigations need to be carried out. Start with a thorough history and examination, to identify most patients with a secondary cause and arrange confirmatory investigations. Then stage 1 initial screening tests will identify those with *JAK2*-positive clonal disease in whom there is no need to proceed further with further investigations:

Stage 1 Investigations

1. History and examination
2. Full blood count/film
3. *JAK2* mutation
4. Serum ferritin
5. Renal and liver function tests

Stage 2 Investigations

If the initial screening tests are negative for a *JAK2* mutation and there is no obvious secondary cause then further investigations are indicated. A red cell mass is required first and if an absolute erythrocytosis is confirmed then the following tests are appropriate.

1. Red cell mass
2. Arterial oxygen saturation
3. Abdominal ultrasound
4. Serum erythropoietin level
5. Bone marrow aspirate and trephine
6. Cytogenetic analysis
7. Erythroid burst-forming unit (BFU-E) culture

Stage 3 Investigations

For those patients who do not fulfil either set of criteria and who have erythrocytosis there are a number of specialised tests that may need to be considered. Some of these are listed below.

1. Arterial oxygen dissociation
2. Sleep study
3. Lung function studies
4. Gene mutations *EPOR*, *VHL*, *EGLN1* (also known as *PHD2*)

Management of Polycythaemia Vera

The aims of treatment of PV are to:

1. Reduce the risk of thrombosis and haemorrhage
 2. Minimise the risk of transformation to acute leukaemia and myelofibrosis
 3. Manage complications which may occur including thrombosis, haemorrhage and pruritus
 4. Manage pregnancy
- Venesection: the Hct should be maintained at less than 0.45 by venesection. The volume removed should be commensurate with the patient's size and comorbidities. **Grade B recommendation: Evidence level IIa.**
 - Aspirin 75 milligrams per day (mg/d) unless contraindicated.
 - Cytoreduction should be considered if:
 - Poor tolerance of venesection
 - Symptomatic or progressive splenomegaly
 - Other evidence of disease progression (e.g., weight loss, night sweats)
 - Thrombocytosis
 - Choice of cytoreductive therapy, if indicated:
 - <40 years old: first line interferon, second line hydroxycarbamide or anagrelide
 - 40 to 75 years old: first line hydroxycarbamide, second line interferon or anagrelide
 - >75 years old: first line hydroxycarbamide, second line ³²P or intermittent low dose busulphan

Grade C recommendation: Evidence level IV

Thrombotic Complications

Assessing Risk of Thrombosis

- Patients should be screened for hypertension, hyperlipidaemia, diabetes and a smoking history taken.
- Conventional risk factors for atherosclerosis should be managed aggressively. All patients should be requested to stop smoking.
- No current evidence to support routine thrombophilia screening in PV.

Grade C recommendation: Evidence level IV

Pregnancy and Polycythaemia Vera

An overview of the literature does not enable confident management guidelines to be drawn up. These recommendations are based on current knowledge of PV, essential thrombocythaemia (ET) and the management of antiphospholipid syndrome, which all have placental dysfunction as a common pathogenic feature. Therapeutic strategies for PV in pregnancy are influenced by the patients' disease status and prior obstetric history. If any of the following factors are present, then the pregnancy is likely to be at high risk of complication to the mother and/or fetus:

- Previous venous or arterial thrombosis in mother (whether pregnant or not)
- Previous haemorrhage attributed to PV (whether pregnant or not)
- Previous pregnancy complication that may have been caused by PV; e.g.
 - ≥ 3 first trimester or ≥ 1 second or third trimester pregnancy loss
 - Birthweight <5th centile for gestation
 - Intrauterine death or still birth (with no obvious other cause, evidence of placental dysfunction and growth restricted fetus)
 - Significant ante- or postpartum haemorrhage (requiring red cell transfusion)
- Severe pre-eclampsia (necessitating preterm delivery <37 weeks) or development of any such complication in the index pregnancy
- Platelet count rising to $>1000 \times 10^9/l$

Therapeutic options include antithrombotic treatment, venesection and cytoreductive agents, although the expected natural fall of the platelet count and Hct during pregnancy may anyway obviate or reduce the need for the latter. The Hct could be controlled with either careful venesection or cytoreductive therapy. The target Hct for a non-pregnant female has yet to be determined, but in pregnancy the Hct should be maintained within the normal range appropriate for gestation. There is currently no evidence for maintaining Hct less than this in pregnancy.

Cytoreduction should be avoided in pregnancy, particularly in the first trimester. None of the cytoreductive agents have a product licence for use in pregnancy. Where cytoreduction is deemed necessary (see above), IFN-alpha is the drug of choice.

Anagrelide is not recommended because of insufficient documentation of its use in pregnancy. Hydroxycarbamide or anagrelide should be gradually withdrawn 3 to 6 months prior to conception and IFN-alpha may be substituted if necessary.

The guideline authors recommend that, in the absence of clear contraindications, all patients should be on aspirin (initially 75 mg once daily) throughout the pregnancy and for 6 weeks after delivery (**Grade C recommendation, Evidence level IV**).

If the patient has had a previous venous or arterial thrombosis, then the use of low-molecular-weight heparin (LMWH) thromboprophylaxis is indicated during pregnancy. Use of unmonitored intermediate dose LMWH is widely used (e.g., enoxaparin 40 mg once daily) increased to 40 mg twice daily from 16 weeks, dropping to 40 mg/d for 6 weeks postpartum).

During the pregnancy the patient should be monitored regularly and management is summarised in Fig 1 of the original guideline document. It is important to discuss the implications of the use of thromboprophylaxis with the obstetric anaesthetist for epidural or spinal anaesthesia. During labour, dehydration should be avoided, attention should be given to the LMWH dose and the use of graded elastic compression stockings (GECS) should be considered. In the puerperium, the guideline authors recommend thromboprophylaxis with 6 weeks LMWH for all women with myeloproliferative disorders (MPD). Breast feeding is safe with heparin and warfarin (providing baby receives adequate vitamin K). Breast feeding is contra-indicated with the cytoreductive agents (IFN-alpha, anagrelide and hydroxycarbamide). The first 6 weeks postpartum are a high risk time for venous thrombosis; blood counts may rise rapidly, thus on-going haematological monitoring is important.

Apparent Erythrocytosis

Management of Apparent Erythrocytosis

- Confirm that the elevated Hct is persistent, with at least two measurements of the Hct under standardised conditions over a 3-month period.
- Advise reduction or elimination of factors which may contribute to apparent erythrocytosis (e.g., a reduction in smoking and alcohol intake and control of hypertension [without the use of a thiazide diuretic]).
- Consider venesection in the following circumstances:
 - Patients with a recent history of thrombosis, or with additional risk factors for thrombosis.
 - Patients whose Hct exceeds 0.54 (>3 standard deviations above the mean), based on the increased risk of thrombosis in idiopathic erythrocytosis and low incidence of normal individuals with a Hct >0.54.
- Untreated patients should be monitored to exclude a further rise in Hct and possible evolution to absolute erythrocytosis.

There is no data on which to base a target Hct for patients undergoing venesection, but a Hct <0.45 has been proposed based on data from patients with PV and idiopathic erythrocytosis (Pearson, 1991).

Grade C recommendation: Evidence level IV.

Idiopathic Erythrocytosis

- Venesection to reduce the Hct to <0.45 if Hct >0.54.
- Venesection to reduce the Hct to <0.45 if <0.54 and there is increased risk of thrombosis (i.e. evidence of ischaemia, previous history of thrombosis, peripheral vascular disease, diabetes or hypertension).
- Cytoreductive therapy is contraindicated.

Grade B recommendation: Evidence level III.

High Oxygen Affinity Haemoglobins

- Possible indications for venesection include the following:
 - Presence of symptoms such as dizziness, dyspnoea or angina, for which a raised Hct is considered to be a contributory factor.
 - One or more previous thrombotic episodes.
 - Asymptomatic individuals in whom a family member with a high oxygen affinity haemoglobin, similar haemoglobin concentration, and comparable risk factors for thrombosis, has developed thrombotic problems.
- Consideration of a partial exchange transfusion should be given for individuals with a Hct >0.60 requiring major surgery (Larson et al, 1997).
- Do not attempt to reduce the Hct to within the normal range. Venesection to maintain the Hct <0.60 has been recommended (Weatherall et al, 1977).
- When thrombosis or symptoms compatible with hyperviscosity develop at a lower Hct, a target Hct of 0.52 has been suggested (Pearson T, personal communication).

Grade C recommendation: Evidence level IV.

Hypoxia

Hypoxic Pulmonary Disease (HPD)

- Patients with HPD who develop an erythrocytosis should be evaluated by a respiratory physician for consideration of long-term oxygen therapy or alternative therapy (**Grade A recommendation: Evidence level 1A**).
- Patients who are symptomatic of hyperviscosity or have a Hct >0.56 should have venesection to reduce this to 0.50 to 0.52 (**Grade B recommendation: Evidence level III**).
- There is limited evidence to suggest that therapy with drugs such as angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor antagonists could be used in patients who do not tolerate venesection (**Grade B recommendation: Evidence level IIa**)

Cyanotic Congenital Heart Disease (CCHD)

- Patients with CCHD and an erythrocytosis represent a complex management problem and should be managed primarily in a congenital heart disease unit so that advances in surgery, catheter interventional and medical management that may improve (rarely cure) the erythrocytosis are not missed. (**Grade C recommendation: Evidence level IV**)
- Isovolumic venesection should be performed when the patient has symptoms of hyperviscosity but no general target Hct can be suggested and treatment should be individualised (**Grade B recommendation: Evidence level III**).
- Excessive venesection may produce iron deficiency, which may compromise oxygen delivery and raise the viscosity for a given level of haemoglobin thereby causing a recurrence of symptoms. Iron therapy in this setting should be used judiciously as it may provoke a rapid rise in Hct (**Grade B recommendation: Evidence level III**).

Postrenal Transplant Erythrocytosis

- Avoid excessive dehydration.

- Treat with an ACE inhibitor or an angiotensin II receptor antagonist.
- Venesect to Hct of 0.45.

Grade C recommendation: Evidence level IV.

Definitions:

Classification of Evidence Levels

Ia: Evidence obtained from meta-analysis of randomised controlled trials

Ib: Evidence obtained from at least one randomised controlled trial

IIa: Evidence obtained from at least one well-designed controlled study without randomization

IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study*

III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies

IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

Classification of Grades of Recommendations

Grade A: Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing specific recommendation (evidence levels Ia, Ib)

Grade B: Requires the availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation (evidence levels IIa, IIb, III)

Grade C: Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality (evidence level IV)

*Refers to a situation in which implementation of an intervention is out of the control of the investigators, but an opportunity exists to evaluate its effect.

CLINICAL ALGORITHM(S)

The original guideline document contains a clinical algorithm for pregnancy management and low molecular weight heparin (LMWH) doses.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations.")

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis, investigation and management of polycythaemia/erythrocytosis

POTENTIAL HARMS

Potential side effects and complications of venesection, cytoreductive therapy, aspirin, and other agents used in treatment of erythrocytosis are discussed in the original guideline document.

Potential Harms in Pregnancy

There are no reports of teratogenic effects in animals or adverse effects in the, admittedly, small numbers of pregnancies exposed to IFN-alfa. However, some evidence suggests that IFN-alfa may decrease fertility.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Few pregnancies in chronic myeloid leukaemia patients treated with hydroxycarbamide have been published, most without fetal complications. However, one still-birth and one malformed infant and teratogenicity in animals have been reported. Hence hydroxycarbamide is probably contraindicated at the time of conception (this also applies to male patients) and during pregnancy.
- Breast feeding is contraindicated if a patient is having any cytoreductive therapy.
- Cytoreductive therapy is contraindicated in patients with idiopathic erythrocytosis.
- Cytoreduction should be avoided in pregnancy, particularly in the first trimester. None of the cytoreductive agents have a product licence for use in pregnancy.
- Antiplatelet agents and anticoagulation therapy for the prevention of stroke should be avoided in patients with cyanotic congenital heart disease given the increased bleeding tendency unless there are additional risk factors for stroke development, such as atrial fibrillation, poor ventricular function or a documented transient ischaemic attack.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

While the advice and information in these guidelines is believed to be true and accurate at the time of going to press, neither the authors, the British Society for Haematology nor the publishers accept any legal responsibility for the content of these guidelines.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

McMullin MF, Bareford D, Campbell P, Green AR, Harrison C, Hunt B, Oscier D, Polkey MI, Reilly JT, Rosenthal E, Ryan K, Pearson TC, Wilkins B, General Haematology Task Force of the British Committee for Standards in. Guidelines for the diagnosis, investigation and management of polycythaemia/erythrocytosis. Br J Haematol 2005 Jul;130(2):174-95. [151 references] [PubMed](#)

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Jul

GUIDELINE DEVELOPER(S)

British Committee for Standards in Haematology - Professional Association

SOURCE(S) OF FUNDING

British Committee for Standards in Haematology

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: Mary F. McMullin, Department of Haematology, Queen's University, Belfast, Belfast City Hospital, Belfast; D. Bareford, Department of Haematology, City Hospital, Birmingham; P. Campbell, Department of Haematology, University of Cambridge, Cambridge Institute for Medical Research, Cambridge; A. R. Green, Department of Haematology, University of Cambridge, Cambridge Institute for Medical Research, Cambridge; Claire Harrison, Department of Haematology, St Thomas' Hospital, London; Beverley Hunt, Department of Haematology, St Thomas' Hospital, London; D. Oscier, Department of Haematology, Royal Bournemouth Hospital, Bournemouth; M. I. Polkey, Sleep and Ventilation Service, Department of Respiratory Medicine, Royal Brompton Hospital, London; J. T. Reilly, Department of Haematology, Royal Hallamshire Hospital, Sheffield; E. Rosenthal, Consultant Paediatric Cardiologist, Guy's Hospital, St Thomas Street, London; Kate Ryan, Department of Clinical Haematology, Manchester Royal Infirmary, Manchester; T. C. Pearson, Department of Haematology, St Thomas' Hospital, London; Bridget Wilkins, Cellular Pathology Department, Royal Victoria Infirmary, Newcastle upon Tyne, UK

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [British Committee for Standards in Haematology Web site](#).

Print copies: Available from the British Committee for Standards in Haematology;
Email: bcsh@b-s-h.org.uk.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Amendment to the guideline for diagnosis and investigation of polycythaemia/erythrocytosis. 2007 Aug. 2 p. Electronic copies: Available from the [British Committee for Standards in Haematology Web site](#).

Print copies: Available from the British Committee for Standards in Haematology;
Email: bcsh@b-s-h.org.uk.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on March 18, 2008. The information was verified by the guideline developer on April 1, 2008.

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