Introduction
The National Comparative Audit Programme comprises a series of audits of the safe and appropriate use of blood. It is operated in collaboration with the Clinical Effectiveness & Evaluation Unit of the Royal College of Physicians. All hospitals in England are invited to participate in the audits, and hospitals in Wales, Northern Ireland and Scotland are invited to participate through the blood services in those countries.

The 2006 – 07 Audit Programme
In 2006-07 the National Comparative Audit of Blood Transfusion commenced 3 clinical audits:

1) Audit of the use of platelets
The objective of this national audit was to examine the use of platelet transfusions against audit standards developed from national guidelines. Hospitals were asked to provide data on 40 consecutive patients receiving platelet transfusions (15 haematology patients, 10 cardiac, 10 critical care, and 5 in other clinical specialties).

187 UK hospitals participated, including 168/263 (64%) hospitals in England. A total of 4,421 patients receiving platelet transfusions were audited.

Key results:
- The reason for transfusion was documented in the medical records for 93% of transfusions, and 57% were used for prophylaxis (in the absence of bleeding).
- Overall 3,726/4,421 (84%) of the transfusions were evaluable, and 43% (1,601/3,726) were found to be non-compliant with the audit standards. A major non-compliance was failure to measure the platelet count before transfusion (29% of transfusions).
- Other non-compliances included the use of platelet transfusion in the absence of bleeding in 11% of cardiac surgery patients receiving platelet transfusions, the use of a threshold platelet count > 10 x 10⁹/L for 60% of prophylactic platelet transfusions in haematology patients without risk factors indicating the need for a higher threshold, and a threshold platelet count > 30 x 10⁹/L for 59% of prophylactic platelet transfusions in critical care.
- The reasons for the high rate of non-compliance were not explored in this audit, but this is a topic worthy of further study.

Recommendations:
- Hospitals should ensure there are written local guidelines for platelet transfusions;
- Clinicians must be provided with training about their appropriate use;
- Hospitals should carry out regular audits of practice;
- More research should be carried out to develop the evidence base for the use of platelet transfusions, more detailed guidelines should be developed for platelet transfusions in critical care and cardiac surgery;
- The audit should be repeated in about 3 years.
2) Audit of the use of blood in primary, elective, unilateral total hip replacement

The objective of this audit was to assess the % of patients transfused, whether transfusion is in line with current guidelines and gather information on the service provision in hospitals. 184 NHS Trusts and 189 independent hospitals were invited to participate, and 151 (80%) of Trusts and 103 (54%) independent hospitals agreed to do so. In all, 223 hospitals contributed data on 7451 operations.

Key results:
- Of the 7465 patients audited, 1823 (25%) were transfused, representing a reduction of about 50% in the numbers being transfused in the year 2000. Two-thirds of the patients who were transfused received two units of blood. About one-quarter (27%) received three or more units.
- Virtually all hospitals state that they have a mechanism for identifying and correcting anaemia pre-operatively, but 15% (795/5237) of patients are admitted for surgery with a haemoglobin of less than 12 g/dl which increases the likelihood of receiving donor blood threefold.
- 47% (91/195) of hospitals had a policy that a decision to transfuse a stable post operative patient should be consistently based on the patient’s Hb level.
- Of 1330 patients transfused during days 1 to 14 after surgery, 88% (1167) had a postoperative pre-transfusion Hb tested. For some of these patients transfusion could have been avoided since the pre-transfusion Hb was higher that 8 g/dl.
- Patients who are transfused 2 or more units of blood and whose post-transfusion Hb is above 10 g/dl, may have been transfused excessively. The majority of patients who have received 2 or more units of blood may have been unnecessarily over-transfused.

Recommendations:
- In order to minimize the likelihood of a patient receiving a donor blood transfusion, pre-operative anaemia should be corrected as far as possible.
- Hospitals should have a written policy for identification and management of anaemia in pre-assessment clinics.
- Surgeons seeing patients at initial consultation must ensure that patients have a full blood count and that anaemic patients are investigated and steps taken to correct the anaemia before surgery.
- General Practitioners referring patients for surgery should take measures to optimize the haemoglobin.
- Every hospital should have a transfusion policy to guide transfusion in the peri- / post-operative period, based upon one or more of the following: Symptoms; Haemoglobin concentration; and estimated blood loss
- Trusts should ensure that their prescribers are aware that it is not necessary to transfuse patients who are asymptomatic, not bleeding and have a haemoglobin of ≥8g/dl.
- In order to avoid over-transfusion, single-unit transfusions may be appropriate.
- Nationally, orthopaedic representation at Hospital Transfusion Committees needs to be improved and more consistent attendance encouraged.

3) UK Comparative Audit of upper gastrointestinal bleeding and the use of blood

This audit is jointly funded by the NHS Blood and Transplant and The British Society of Gastroenterology. The audit is not due to report until December 2007, but at the time of writing there were 216 NHS hospitals contributing information.
Work programme for 2007/08 and subsequent years
The work programme for 2007/08 includes the audit of upper gastrointestinal bleeding and the use of blood, an audit of overnight blood transfusion, a 2-region audit of the appropriate use of blood and an audit of the use of fresh, frozen plasma.

Conclusion
The programme is tasked with running a series of complex national audits. There is difficulty in obtaining participation in national audits because of limited availability of local audit staff and competition from other audit initiatives. The availability of time for the collation and analysis of data is also limited. We have developed technology to allow on-line input of data which facilitates both data input in hospitals and its analysis by the audit team. We have experienced some difficulties with the technology but these have largely been overcome. We continue to learn from these experiences, to develop better methods and more useful audits, with the aim of providing, free of charge, for hospitals in England, a series of effective clinical audits which they can use to evaluate, change and improve transfusion practice.

Management arrangements
The audit programme is overseen by a Steering Group with wide representation from relevant professional bodies. A Programme Implementation Group exercises executive control over the programme, and each audit project is managed on a day to day basis by a Project Group specially convened for that purpose. The membership of these groups is shown at the end of this report.

The programme is managed on a day to day basis by a 1.0 WTE Project Manager, John Grant-Casey, and administered by a 1.0 WTE Project Officer, David Dalton. The programme is based in the Hospital Liaison section of Public and Customer Services, within NHS Blood and Transplant.

The Steering Group for the National Comparative Audit of Blood Transfusion always welcomes ideas and suggestion for topics to audit. If you would like to contribute any topics or ideas, please send them to:

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Further details about the audit programme can be obtained by visiting our website: http://hospital.blood.co.uk/safe_use/clinical_audit/National_Comparative/index.asp
Appendix 1  Audit Partners

Steering Group membership details
Prof. Mike Murphy (Chair), NHS Blood and Transplant; Dr Ann Benton, Lead Consultant for Better Blood Transfusion in Wales; Dr Hari Boralessa, NHS Blood and Transplant; Dr Hannah Cohen, British Society for Haematology; John Grant-Casey, NHS Blood and Transplant; Sandra Gray, Scottish National Blood Transfusion Service; Mike Hayward, Royal College of Nursing; Catherine Howell, NHS Blood and Transplant; Joan Jones, Welsh Blood Service and Institute of Biomedical Science; Derek Lowe, Royal College of Physicians; Prof. John Lumley, Royal College of Surgeons; Dr Kieran Morris, Northern Ireland Blood Transfusion Service; Dr AJ Mortimer, Royal College of Anaesthetists; Mr. John Thompson, Royal College of Surgeons; Dr Gill Turner, Norfolk and Norwich University Hospital; Adrian Copplestone, National Blood Transfusion Committee; Jonathan Potter, Royal College of Physicians, Dr. Clare Taylor, SHOT; Susan Cottrell representing SNBTS; Stuart Blackwell, Patient representative; and David Dalton, Project Officer.

Programme Implementation Group details
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Project Group - Audit of the use of platelets
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Project Group – Audit of the use of blood in primary, elective, unilateral total hip replacement
Dr Hari Boralessa, Consultant Haematologist, NHS Blood & Transplant; Mr. Keith Tucker, Consultant Orthopaedic Surgeon & President, British Hip Society; Dr. Sandy Kidd, Consultant Anaesthetist, South West London Elective Orthopaedic Centre; Karen Madgwick, Transfusion Practitioner, North Middlesex University Hospital; Derek Lowe, Medical Statistician, Royal College of Physicians; David Dalton, Project Officer, National Comparative Audit; John Grant-Casey, Project Manager, National Comparative Audit.

Project Group - UK Comparative Audit of upper gastrointestinal bleeding and the use of blood
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