Northern Ireland Audit of Preventable Anaemia and Avoidable Transfusion

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On behalf of the Northern Ireland Regional Transfusion Committee

HSC Health and Social Care in Northern Ireland

The reasons for this are outlined below:

Introduction

The Northern Ireland Regional Transfusion Committee (NIRTC) carried out a regional audit in 2006 on appropriateness of transfusion and identified almost 1 in 5 transfusions could have been avoided and 29% of patients were overtransfused. The audit also identified that 85% of patients transfused were found to be anaemic on hospital admission as defined by the World Health Organisation

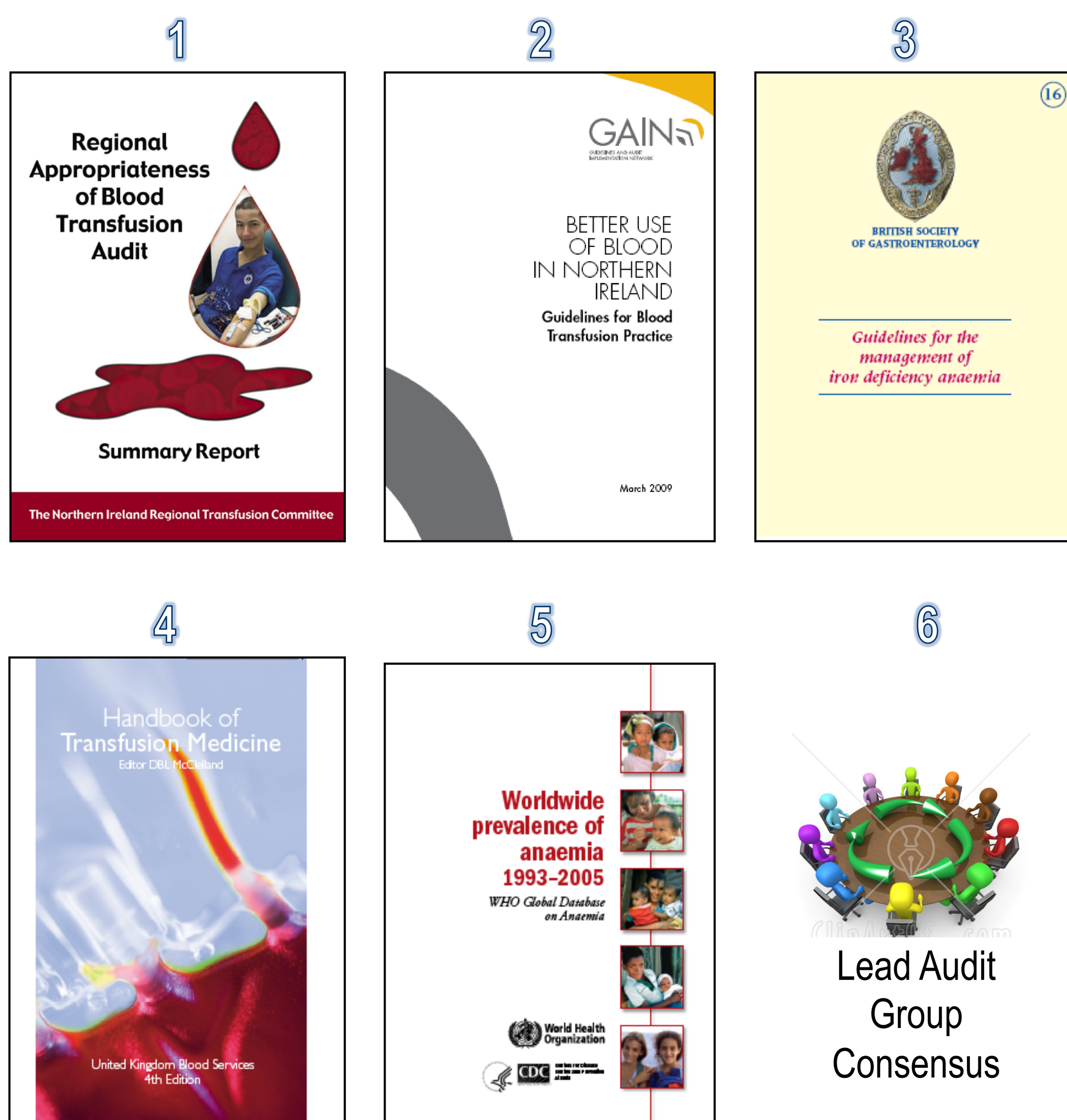
This prompted as investigation into whether this anaemia could have been identified and treated earlier.

Method

An application was made on behalf of the NIRTC to the Guidelines and Audit Implementation Network (GAIN) to fund a major regional audit project to assess the current management of anaemia – this was granted.
A Lead Audit Group was formed for the project and included the 11 Chairs of the various Hospital Transfusion Committees. This group identified a number of **key standards** for the audit:

- Anaemia should be identified when first clinically suspected from suggestive signs or symptoms[5,6]
- Once anaemia is identified, it should be investigated appropriately by blood tests and other investigations to determine its cause[3,6]
- If an underlying deficiency is identified (e.g. iron deficiency), appropriate oral replacement therapy should be given[1,3]
- If an iron deficient patient is intolerant of or unable to absorb oral iron therapy, parenteral therapy should be used[3,4]
- Patients should only be transfused as per regional guidelines[1,2]
- Patients should not be transfused more than 2.0g/dl above their transfusion threshold[1,2]
- Patients requiring transfusion should be referred to a specialist for investigation unless it is considered inappropriate to do so[3,6]

Below are guidelines from which these standards were drawn:

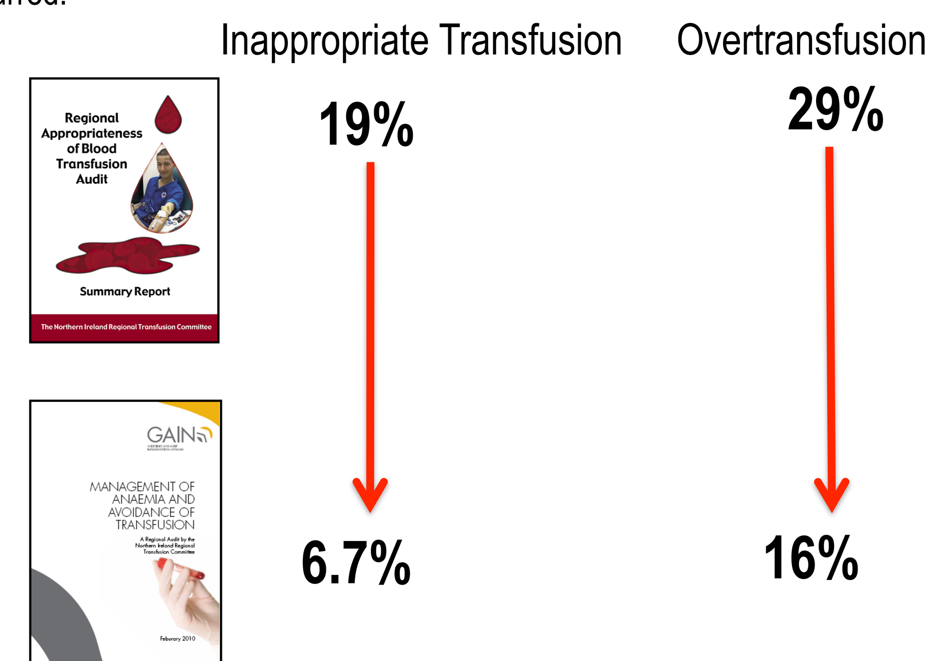


Audit Design

Transfused patients who were anaemic, as defined by the World Health Organisation on admission to hospital were identified. These patients had their clinical notes examined retrospectively to determine if there was an opportunity to correct anaemia prior to transfusion.
Altogether 800 sets of clinical notes were to be examined. The number per hospital was determined by the size of the hospital but the minimum number audited in one site was 40 sets. The data collectors were recruited locally and they attended a full training day.
Extensive consultation, trail and review of the audit proforma was undertaken before the final version was accepted.
Data collection took place between June 2008 and April 2009. All completed forms were checked by an audit facilitator for completeness and quality of data and then independently checked by two consultant reviewers to ensure agreement of decisions made regarding appropriateness of transfusion.

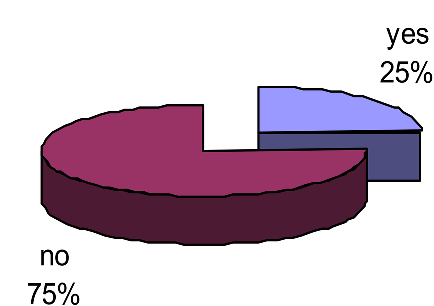
Results

743 patients across Northern Ireland who had a blood transfusion had their hospital notes audited retrospectively in detail to determine if the transfusion could have been avoided.
When comparisons from the 2010 audit are compared to the regional audit carried out in 2006, it is noted that inappropriate transfusion has decreased from 19% in 2006 to 6.7% currently. Likewise, overtransfusion had decreased from 29% to 16% in this current audit. This demonstrated that a significant clinical improvement in transfusion practice had occurred.

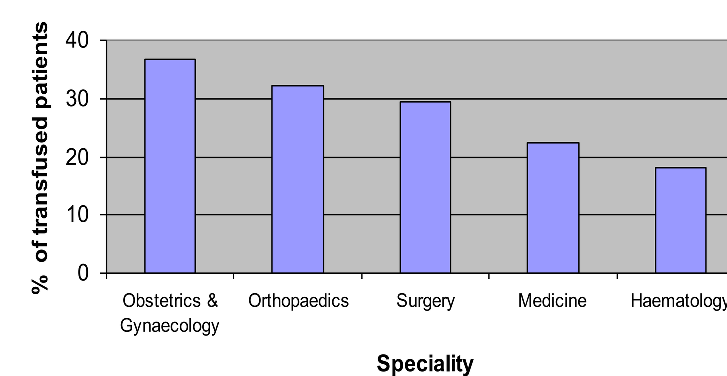


However the audit also revealed that further significant improvement was still possible with 25% of all transfusions being potentially avoidable.

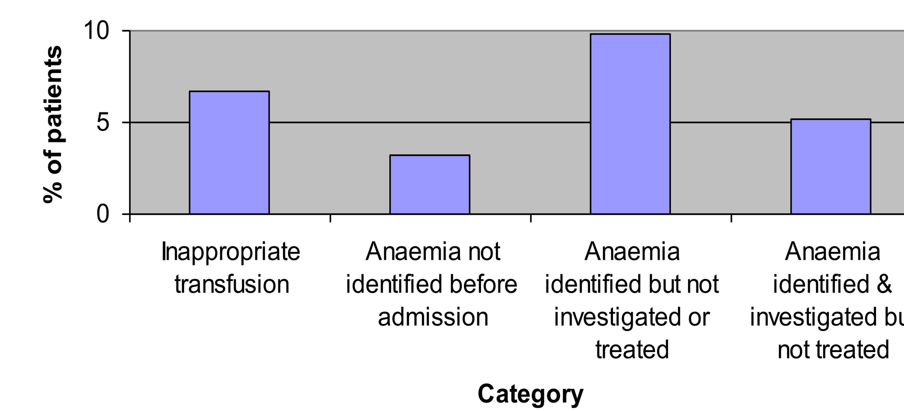
Could transfusion have been avoided?



Transfusions were avoidable in the following specialities:



There were four key reasons that transfusion could have been avoided



- **Inappropriate Transfusion** – A transfusion administered by Healthcare staff when not clinically indicated by regional guidelines
- **Anaemia Not Identified Before Admission** – Healthcare staff often failed to check the blood count early enough in patients with obvious chronic bleeding
- **Anaemia Identified But Not Investigated or Treated Before Admission** – Healthcare staff were aware of a patients anaemia but often failed to carry out basic investigations to identify and treat the underlying haematinic deficiency – which was usually iron deficiency.
- **Anaemia Identified And Investigated But Not Treated Before Admission** In these cases Healthcare staff were aware of both anaemia and underlying haematinic deficiency but failed to ensure it was appropriately treated.

Recommendations

Recommendation 1
Patients should only be considered for transfusion if their haemoglobin concentration has fallen below their transfusion threshold.

Particular attention should be paid to stable patients without cardiac or cerebrovascular disease who have lower transfusion thresholds.

Recommendation 2
Healthcare professionals should have a high index of suspicion to check for correctable anaemia in patients with low grade chronic bleeding and malabsorption syndromes.

Recommendation 3
Anaemia is often the first sign of an underlying disease process which needs investigation and treatment.

Anaemia should be investigated for simple haematinic deficiencies which can be treated in parallel with the investigation and treatment of the underlying cause.

Recommendation 4
Healthcare professionals have a duty of care to anaemic patients with a clear underlying deficiency to ensure that they receive the appropriate haematinic medication to treat their anaemia and to avoid transfusion.

If the oral route cannot be used then parenteral therapy should be considered.

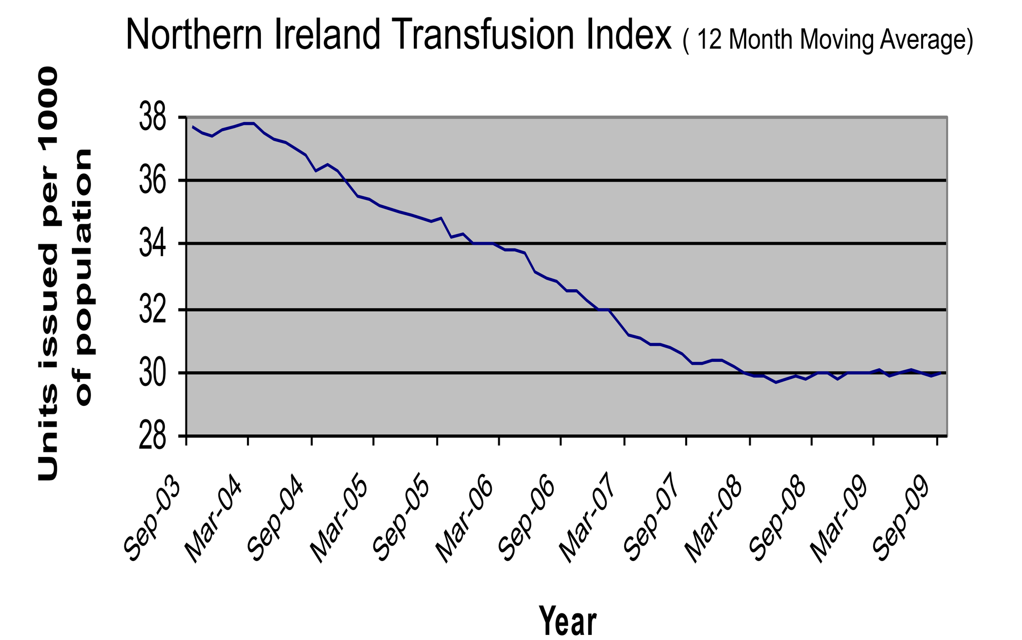
Recommendation 5
Education on strategies to prevent avoidable transfusion should be conducted regionally across all areas of care

Recommendation 6
Overtransfusion should be avoided. When deciding on the number of units to transfuse, consideration should be given to the transfusion threshold of the patient, the size of the patient and whether or not significant active bleeding is present.

Single unit transfusions may be appropriate in some cases.

Recommendation 7
Healthcare Professionals should ensure that all patients with unexplained anaemia are investigated for an underlying cause unless it is not in the patient's best interest to do so.

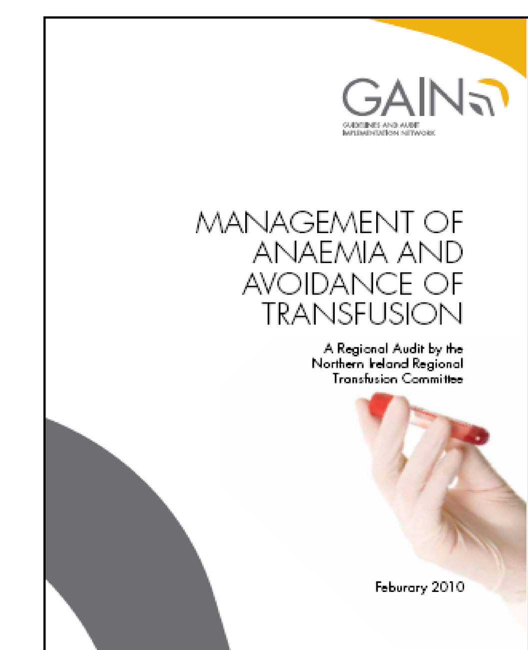
Discussion



Following a highly successful regional audit (2006) and subsequent action plan, Northern Ireland has reduced its blood use by over 15% in the last 4 years and with a transfusion index of approximately 30 units per 1000 of the population, is one of the most restrictive transfusion countries in Europe.
Despite this excellent performance, this current audit indicates that significant further improvement is possible by examining the reasons why patients become anaemic and actively dealing with this anaemia before blood transfusion is necessary.

Given the highly restrictive transfusion practice currently in Northern Ireland, the results of this audit are likely to be equally meaningful to other countries.

Future Direction



1. The results of this audit have been published and widely distributed to all Trusts across Northern Ireland.
2. Education sessions highlighting the results of this audit are ongoing across all Trusts..
3. Hospital Transfusion Committees and Haemovigilance Practitioners are working to ensure these guidelines are implemented in practice.
4. There will be ongoing monitoring, evaluation and audit to promote improvements in practice.

Contact information

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