BRINGING EVIDENCE INTO PRACTICE: USE OF A RAPID REVIEW METHODOLOGY TO FORMULATE MEDICAL RECOMMENDATIONS FOR THE RED CROSS BLOOD SERVICE

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INTRODUCTION

The Belgian Red Cross-Flanders is active at home and abroad in many fields: from blood supply to emergency aid. The central thread in our strategic plan is to make all our field programmes evidence-based and to develop evidence-based recommendations and practice guidelines. For many questions in our field no systematic reviews or evidence-based guidelines are available yet. To develop our own guidelines in a timely and cost-conscious way, we developed a rapid review methodology.

OBJECTIVES

This poster informs about the application of evidence-based practice in an action-oriented organisation. We illustrate our methodology with a specific question from the Blood Service, i.e. **Is it safe to use blood from hemochromatosis patients for blood donations?** These patients frequently need bloodlettings for medical reasons.

METHODS

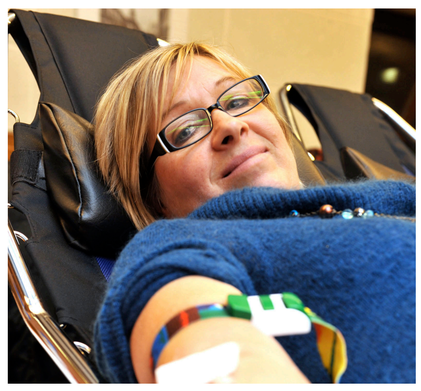
- ✓ Methods to develop guidelines need to be rigorous and transparent. This is especially important so that the guidelines are not subject to potential biases of guideline development and that users have confidence in its validity. Therefore we use the criteria described in the 'Rigour of development section' of the **AGREE II tool for guideline development**.
- ✓ The first item of the 'Rigour of development' domain states that **'Systematic methods were used to search for evidence'**. Where possible we include existing systematic reviews in the evidence base. If no systematic reviews are available we search for individual studies using a pragmatic approach, which we call a 'rapid review methodology', in order to develop the guidelines in a timely and cost-conscious way.
- ✓ The **'Rapid review' terminology and methodology** is widely used among Health Technology Assessment (HTA) organisations in order to deliver evidence to decision-makers in a shortened time frame [1, 2]. In addition, BestBETs or 'Best Evidence Topics' offers a database of pragmatic systematic reviews for clinical practice as clinicians need their answers today (www.bestbets.org). These reviews provide concise summaries of the best available evidence for very specific questions.
- ✓ However, **existing methods of rapid reviews can vary**. Based on a survey among HTA organisations it was observed that systematic reviews were always included and randomized and non-randomized trials were included in 94% and 83% of the reviews. For 75% of the reviews quality of the evidence was assessed and in 67% of the reviews an expert panel was involved [1].
- ✓ The pragmatic approach ('rapid review') that we use in our practice guideline development is illustrated in Table 1. All our 'evidence summaries' are validated by an expert panel.

TABLE 1 ▶ PRAGMATIC APPROACH TO SEARCH FOR EVIDENCE USED IN OUR GUIDELINE DEVELOPMENT

METHODOLOGY	GUIDELINE DEVELOPMENT
Number of reviewers	1 experienced reviewer
Electronic search formula	based on Mesh-terms; truncated to max. 500 references; use of methodological filter if necessary; use of function related articles
Number of bibliographic databases	Guidelines/Systematic reviews: GIN, NGC, Cochrane Library, BestBETs Primary studies: Pubmed, Cochrane Library If necessary for the context, extra databases can be defined per project
Search for gray literature, handsearching, screening reference lists	not done
Author communication for missing data	not done
Selection criteria related to study design	min. Systematic reviews or intervention studies, other designs optional if they make up the majority of the evidence base
Selection related to type of population/interventions/comparisons/ outcomes	limited to most direct and important factors
Quality assessment	body of evidence according to GRADE, the items publication bias and selective outcome reporting bias are not considered
Meta-analysis	not done, if there are no existing meta-analysis available special attention is given to the findings of key trials (key trials are adequately conducted and the confidence interval excludes values that would change the decision)
Grade of recommendation	done
Expert panel	done
Peer review	done

RESULTS

- ✓ We performed this review in three months. Six observational studies were relevant to our question. The strength of the body of evidence was low to very low (see Table 2).
- ✓ No evidence could be found that shows that the blood from hemochromatosis patients would be of insufficient quality or would be unsafe to be used for blood transfusion.
- ✓ Results of the rapid review could result in a change in the blood donation procedures.



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DISCUSSION & CONCLUSIONS

- ✓ To shift from an implementation and execution organization to one which actively sets the trend, the Belgian Red Cross-Flanders introduced evidence-based practice in its activities.
- ✓ In order to develop guidelines in a timely and cost-conscious way, a pragmatic way of searching evidence was developed. A limitation of this rapid review method is that the conclusions are tentative and may be subject to change once a systematic review is available. The evidence and draft recommendations are always validated by external experts.
- ✓ Where literature is lacking our steering committee can decide on making full systematic reviews. These can be included when updating our guidelines. Because of the implications for practice it was decided to elaborate the rapid review on hemochromatosis to a full systematic review.

TABLE 2 ▶ EVIDENCE BASE FOR THE QUESTION CONCERNING THE USE OF BLOOD OF HEMOCHROMATOSIS PATIENTS AS DONOR BLOOD

STUDY	POPULATION	OUTCOME	FINDINGS	LIMITATIONS IN DESIGN
Luten et al., 2008 [3]	8 hemochromatosis patients with proven iron-overload and 15 regular donors	Several hematologic, biophysical, and biochemical variables in red blood cell concentrates, weekly taken during a storage period of 50 days	No significant differences between hemochromatosis and regular donors	Design: Observational study; Limitations: none
Sanchez et al., 2001 [4]	52650 blood donors from 8 different US blood centres, including 197 hemochromatosis patients	Unreported deferrable risks based on anonymous mail survey; antibody to hepatitis B core antigen, syphilis, human immunodeficiency virus, hepatitis C virus, hepatitis B surface antigen, human T-lymphotropic virus, and elevated alanine aminotransferase levels in blood samples	No statistically significant differences between hemochromatosis and regular donors	Design: Observational study; Limitations: recall bias
Leitman et al., 2003 [5]	130 hemochromatosis patients with laboratory evidence of iron overload	Seroconversions for agents of transfusion-transmissible disease (not specified) during serial donations (weekly to every 8 weeks, based on ferritin levels), during the study period of 27 months	No incident seroconversions for agents of transfusion-transmissible disease occurred	Design: Observational study (case-series); Limitations: no control group
Jolivet-Gougeon et al., 2008 [6]	26 iron-overloaded (homozygous C282Y mutation), 35 iron-depleted hemochromatosis patients and 33 healthy control subjects	Antibacterial acitivity of serum samples against *Salmonella typhimurium* LT2	Statistically significant decrease for iron-overloaded hemochromatosis patients compared to iron-depleted patients and controls. No difference for iron-depleted patients versus controls	Design: Observational study; Limitations: none
Jolivet-Gougeon et al., 2007 [7]	236 male hemochromatosis patients (C282Y/C282Y) and 303 blood donors	Antibodies against several serogroups of Y*ersinia pseudotuberculosis* (I to V) and *Yersinia enterocolitica* (O:3, O:9 O:5.27) in serum samples	No significant increase for hemochromatosis patients compared to control blood donors	Design: Observational study; Limitations: none
Bullen et al., 1991 [8]	5 iron-overloaded hemochromatosis patients and 5 healthy persons	Survival of *Vibrio vulnificus* in the blood samples, measured by mixing the blood with a suspension of *V. vulnificus* bacteria	Statistically significant difference in survival: No survival in normal blood for inoculum 10^3/ml or less, while bacteria grew rapidly in blood samples from iron-overloaded hemochromatosis patients.	Design: Observational study; Limitations: lack of inclusion and exclusion criteria

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