

# Applying reflective Multicriteria Decision Analysis to understand the value of therapeutic alternatives in the management of anaemia in gynaecologic surgery

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## BACKGROUND AND IMPORTANCE

Iron deficiency anaemia is the most prevalent nutritional deficiency, affecting 29% women. It is common in patients undergoing elective gynaecological surgeries (18.1%) and up to 90% postsurgery, increasing the risk of negative outcomes and need for transfusions. Oral iron, especially ferrous sulphate (FS), is used as the most common treatment and intravenous iron is solely used in severe cases. Ferric carboxymaltose (FCM) has demonstrated clinical benefits above FS but it is not widely used due mostly to its high cost.

## AIM AND OBJECTIVE

Our objective was to assess the value of FCM vs FS for anaemia in patients undergoing benign gynaecologic surgery in our country. We followed a multicriteria decision analysis (MCDA) by using the EVIDEM framework, that allows the incorporation of multiple stakeholders, including patients.

## MATERIALS AND METHODS

The framework was adapted considering evidence retrieved with a PICO-S-T search strategy and grey literature.

Criteria/subcriteria were weighted by relevance (exercise 1) and an evidence-based decision-making exercise (exercise 2) was developed to assign a score from -5 (in favour of FS) to +5 (FCM) to each alternative for each criterion. Weights and scores were multiplied to obtain the value of intervention relative to each criterion/subcriterion. Values were added to calculate the Modulated Relative Benefit-Risk Balance (MRBRB) on a -1 (FS) to +1(FCM) scale. Ten stakeholders (gynaecology/obstetrics, haematology, anaesthesiology, midwifery, hospital pharmacy, hospital management, and patients and patients' representatives) participated to collect different perspectives.

## RESULTS

Weights in the first exercise were different among profiles: Compared Efficacy/Effectiveness (26.7% on average for all the participants (AP, 28% for hospital pharmacists (HP)) was the most relevant criterion, followed by Compared Safety/Tolerability (19% AP, 24% HP) that showed the greatest difference among all participants and HP (Figure 2). HP were among the stakeholders weighting the less modulators, within which the most important for them was Type of benefit.

In the second exercise, evidence-based decision making, in general, participants were in favour of FCM in all criteria, as were HP, except for Economic Consequences (+1 AP,-2.82 HP). The stakeholders that were more in favour of FCM were Nursery/Midwifery, Anaesthesiology, and Haematology.

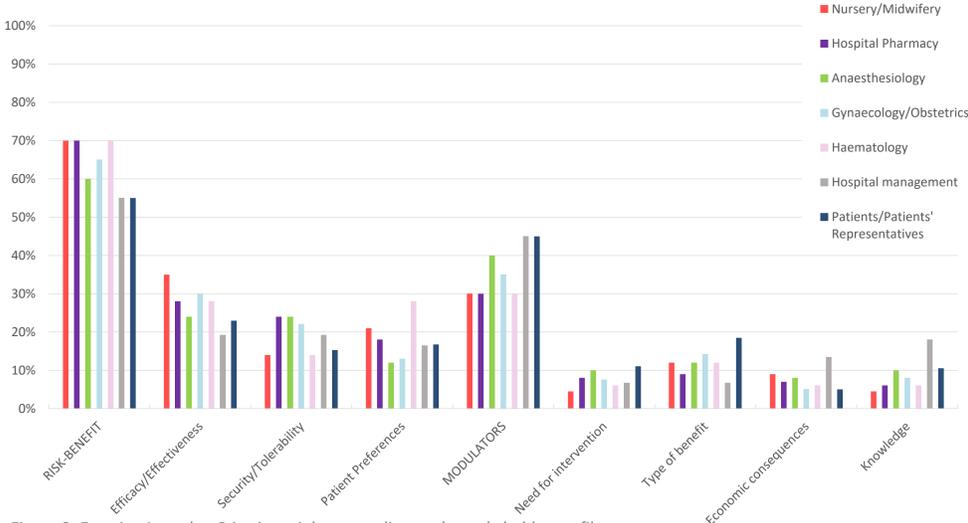


Figure 2. Exercise 1 results: Criteria weights according to the stakeholder profile.

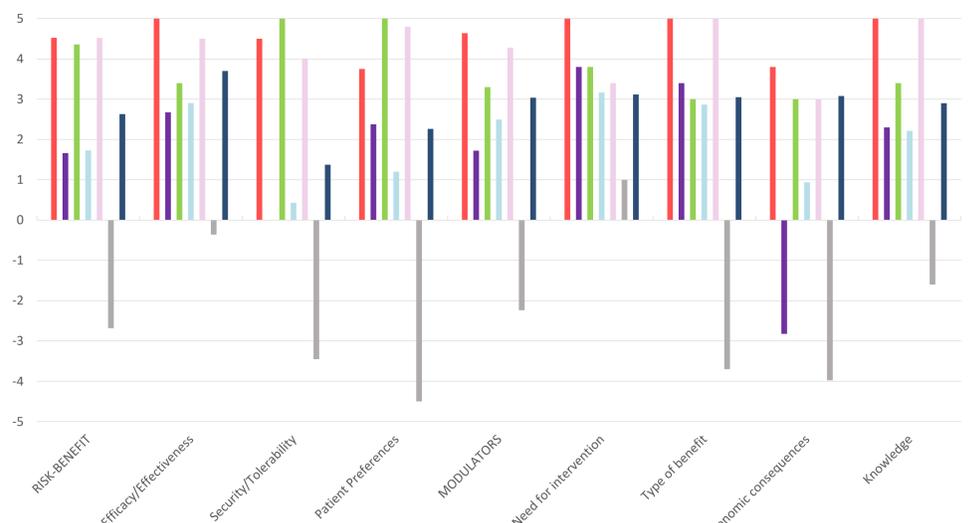


Figure 3. Exercise 2 results: Evidence-based decision making according to the stakeholder profile.

Lastly, value of each criterion was calculated. The criterion with the highest impact was Compared Efficacy/Effectiveness (+0.178,+0.15). All profiles were in favour of FCM except Hospital Management. General MRBRB was +0.48 (Figure 4); for HP, MRBRB was +0.34; being the most important criteria Compared Efficacy/Effectiveness.

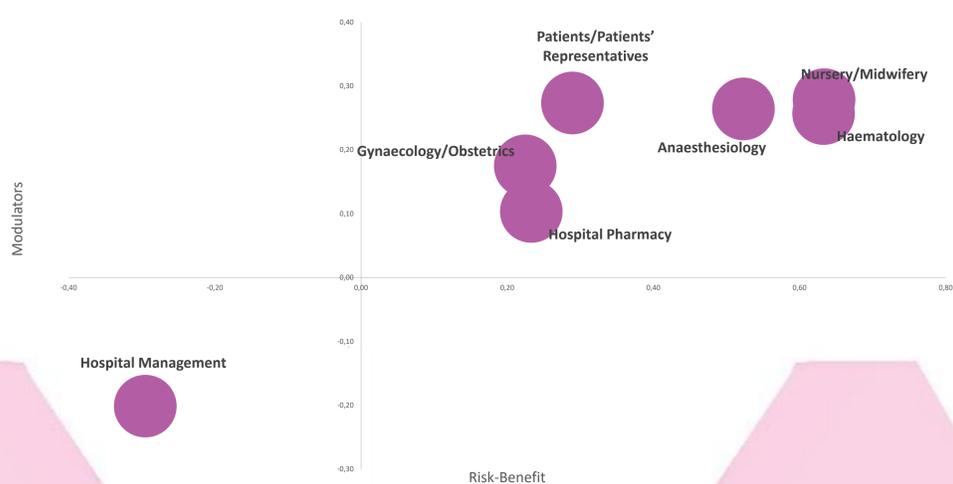
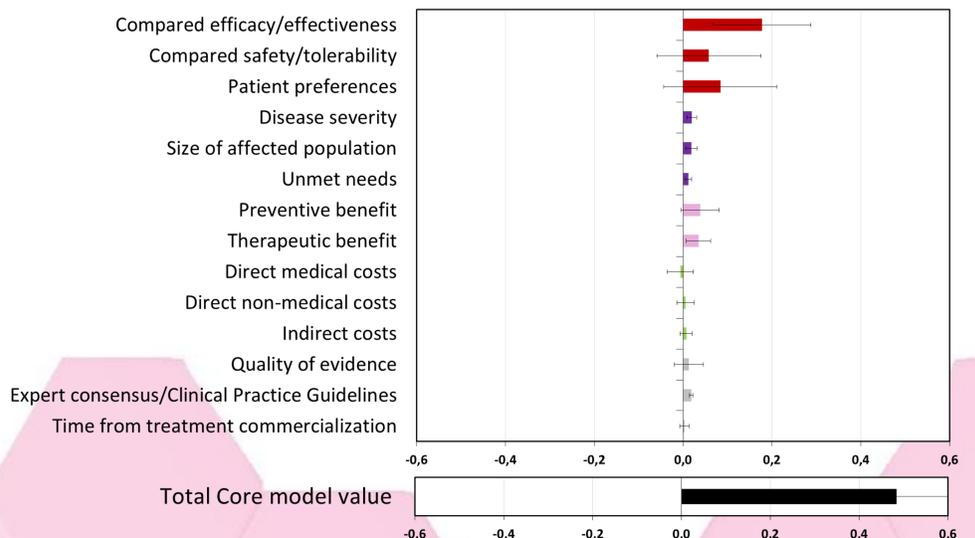


Figure 4. Final results, MRBRB: left, according to stakeholder profile and right, by criteria.



## CONCLUSION AND RELEVANCE

From global and HP perspectives, FCM was the preferred alternative for treating anaemia in patients undergoing benign gynaecological surgery. MCDA can be a useful tool to incorporate diverse voices in the decision-making process, including professionals as well as patients.



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Figure 1. Stakeholders involved in MCDA.