Cost-effectiveness of using Intravenous Ferric Carboxymaltose (FCM) Vs Intravenous Iron Sucrose (ISC) to treat Iron Deficiency Anemia (IDA) in Pregnancy

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BACKGROUND

- **Anemia in pregnancy** is a major public health concern contributing to **maternal** and **perinatal morbidity** and **mortality**.
- Despite evidence and guidelines supporting use of **IV FCM**, its **adoption** in India remains **limited due to high costs**.(29 $/1000mg)
- The current study evaluates the **cost-effectiveness** of **IV FCM** vs **IV ISC** when **parenteral treatment** is indicated to treat moderate to severe anemia during **pregnancy.**

OBJECTIVES

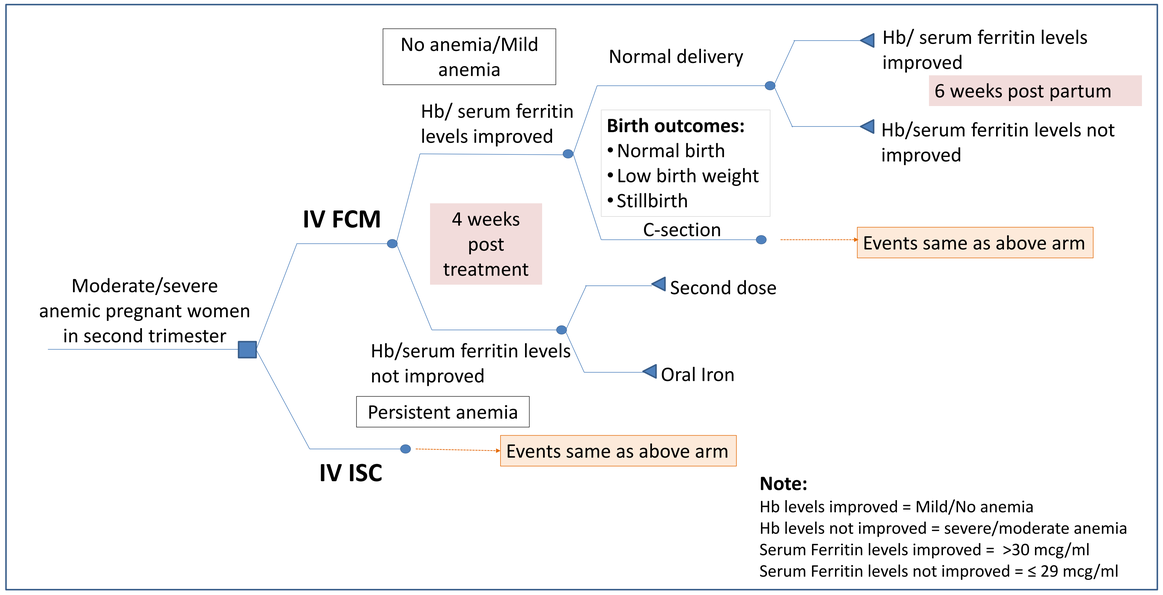
- To estimate **Out of pocket expenditure**; **Quality of life, Health system cost and Cost-effectiveness** of using **IV Ferric Carboxy Maltose** in treatment of **Iron deficiency anemia** in **pregnancy** vs **IV Iron Sucrose**

METHODOLOGY

PICO

Population	**Pregnant anemic women in second trimester with moderate to severe anemia in India (2,100,214 as on 2024)**
Intervention	**IV Ferric Carboxymaltose**
Comparator	**IV Iron Sucrose**
Outcome at 4 weeks post treatment (PT) and 6 weeks post partum(PP)	➢**ICUR per QALY gained** ➢**ICER per case of outcome improvement (Hb levels and Ferritin levels)** ➢**Adverse events averted** ➢ **Low birth weight babies averted** ➢**Still births averted** ➢**QALYs gained** ➢**Budget Impact Analysis**
Perspective	**Societal Perspective**

Decision Tree for IV FCM vs IV ISC

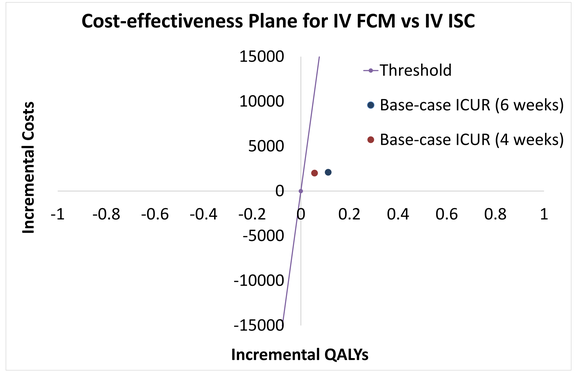


INPUT PARAMETERS

- **Systematic Review and Meta analysis was conducted to assess** clinical effectiveness and adverse events of both drugs (IJMR Jan 2024)
- **A randomised control trail was undertaken to estimate effect parameters as they were not available in literature. These parameters were as follows:**
  - Probabilities in improvement in anaemia status to no anaemia or mild anaemia,
  - Deriving utility scores using EuroQol 5D5L tool
  - Maternal and perinatal outcomes and
  - Out of Pocket expenditure
- **Health System Cost parameters:**
  - Health system costs for antenatal, delivery and postnatal care including costs for investigations was considered from existing country level National Health System Cost Database
  - **Prices of the IV drugs** were taken from Tamil Nadu Medical Service Corporation and management of adverse events from a published report (access QR for more info)

RESULTS

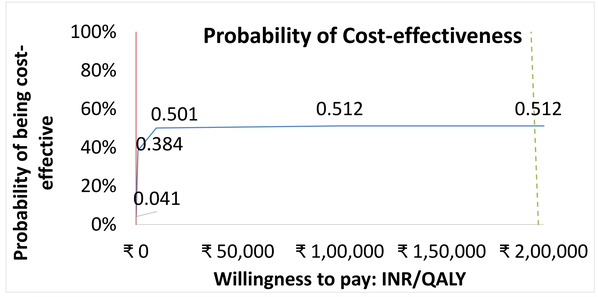
- **IV FCM** is **cost-effective** at current price of **USD 29** for **1000 mg** at one times GDP per capita threshold (GDP per capita (2022) INR 1,97,440 or USD 2,391).



Cost-effectiveness parameters	4 weeks PT	6 weeks PP
ICUR per QALY gained	USD 224	USD 4,218
ICER per case of outcome improvement (Hb levels)	USD 1,181	USD 822
ICER per case outcome improvement (ferritin levels)	USD 92	USD 117
ICER per adverse event averted	USD 228	

Health outcomes for IV FCM vs IV ISC

Health Outcomes	Values
Adverse events averted	2,33,123 cases
Low birth weight babies averted	19,600 cases
Still births averted	15,427cases
QALYs gained (4 weeks Post Treatment)	2,36,904



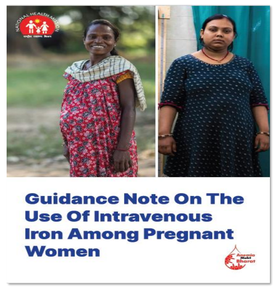
If the price of IV FCM is reduced below **USD 5** there will be no additional expenditure

Budget Impact: Total health system cost of treating the entire cohort of moderate/severe anemic pregnant women with **IV FCM is USD 79 millions** and with **IV ISC is USD 23 millions**. The **incremental budget** for **IV FCM is USD 56 millions**.

DISCUSSION

- IV FCM is both clinically effective and cost effective to treat moderate to severe iron deficiency anaemia in pregnancy when parenteral administration is indicated

CONCLUSION



Recommendations from the study with other evidence led to the development of a Guidance note by Ministry of Health and Family Welfare to use IV FCM in pregnancy

Please scan or click the link for more details on the study and HTA in India

https://qrfy.io/p/17q0asQ7Qo

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