

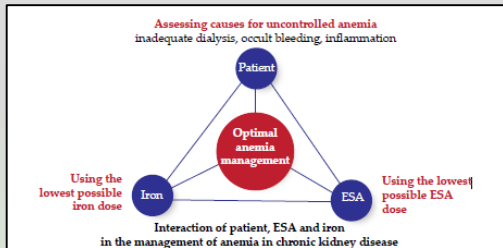
Anemia Control Model use is associated with better Hemoglobin target achievement in a Singapore Hemodialysis cohort.

Jasmine Ion Titapiccolo¹, Sugandha Saxena², Francesco Bellocchio¹, Cindy Chan³, Yan Yi Cheung⁴, Len Usvyat⁵, Mario Garbelli¹, Eric Liu⁶, M Nandkumar⁴, Benjamin Hippen⁷, Frank Maddux⁸, Luca Neri¹, and Milind Nikam⁹

¹Fresenius Medical Care, Vaiano Cremasco, CR, Italy; ²Fresenius Medical Care, Gurugram, India; ³Fresenius Medical Care AG, Hong Kong; ⁴Fresenius Medical Care AG, Singapore; ⁵Advanced Analytics, Research, & Insights, Renal Research Institute, LLC, New York, United States; ⁶Fresenius Medical Care, Sydney, Australia; ⁷Fresenius Medical Care AG, Charlotte, North Carolina, United States; ⁸Fresenius Medical Care, Waltham, Massachusetts, United States; ⁹Fresenius Medical Care, Dubai, United Arab Emirates.

BACKGROUND

- Anemia is common in patients suffering from chronic kidney disease (CKD).
- The multifactorial pathophysiology of CKD anemia and differences in patient population characteristics add challenges to anemia management.
- To assist clinical decision making, Fresenius Medical Care (FMC) developed the Anemia Control Model (ACM), an Artificial Intelligence (AI)-based medical device designed to suggest Erythropoietin Stimulating agents (ESA)/ Iron dosage optimized for personalized patient characteristics.
- Since 2014, ACM has been utilized by the European FMC Nephrocare network and has well-documented experience (Barbieri et al, 2016; Garbelli et al, 2024).
- In recent years, ACM was successfully implemented in FMC clinics in Singapore.



METHODS

- This is a retrospective study of patients receiving Hemodialysis (HD) at FMC clinics in Singapore between March 2023 and March 2024.
- We analyzed percentages of patients reaching the hemoglobin (Hb) target when ACM's dosage suggestions were accepted and not accepted.
- We also analyzed outcomes of patients based on difference between ESA prescription and ESA administration.
- The prescribed monthly dose is based on the total ESA dosage specified for the month.
- The administered monthly dose, which may differ from the prescribed dose due to various clinical factors, is the sum of all ESA doses actually administered during the month.
- The target Hb levels are 10-12 g/dL for patients treated with ESA and > 12 g/dL for patients not treated with ESA.

OBJECTIVES

This study aims to evaluate the clinical efficacy of ACM and physician's response to ACM suggestion in the Singapore cohort.

RESULTS

- The ACM returned an average of 78.2% (\pm 3.75%) suggestions of the total monthly triggers (**Figure 1**)
- The average percentage of suggestions receiving validation by a physician was 72.3% (\pm 12.9%) of the monthly ACM suggestions. period.
- The average percentage of suggestions accepted by the physician was 51.2% (\pm 3.3%) out of the monthly validated suggestions (**Figure 2**)
- ACM suggestions, validated ACM suggestions, and ACM acceptance rate based on prescription showed an increase over time during the evaluation

Figure 1: Number of HBS triggers and number of ACM suggestions over time

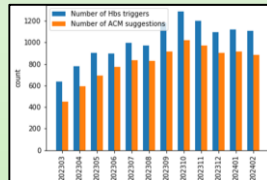
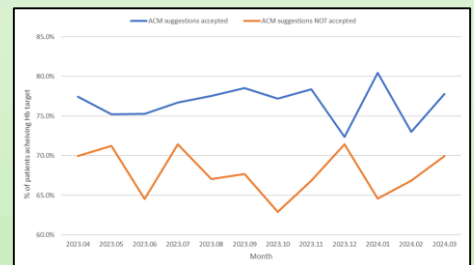


Figure 2: Accepted suggestions based on prescription over time



Figure 3: Comparison of percentages of patients achieving their Hb when ACM-accepted suggestions with ACM-non-accepted suggestions.



- The percentages of patients achieving their Hb target were significantly higher ($p < 0.05$) in ACM-accepted-suggestions (76.7% (\pm 2.2%)) in comparison with ACM non-accepted suggestions (67.9% (\pm 2.8%)) (**Figure 3**).

CONCLUSION

- Increasing acceptance of ACM as clinical decision aid among Singapore nephrologists, leading to improved Hb target achievement over time.
- Further studies in Asian populations are warranted to delineate the role of the ACM.

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