

Developing A Cost-Utility Model In A South Korean Chronic Hemodialysis Setting: The Case For Implementation Of High-Volume Hemodiafiltration

J.Petrovic Vorkapic¹, D.-Y. Lim², A. Kozlova¹, E. Busink¹

¹Fresenius Medical Care Deutschland GmbH, Bad Homburg, Germany, ²Fresenius Medical Care South Korea, Seoul, South Korea,

INTRODUCTION

High-volume hemodiafiltration (HVHDF) is a dialysis modality defined by convection volumes $\geq 23\text{L/session}$. Compared to high-flux hemodialysis (HD), it is associated with **improved survival and quality of life**. Despite these benefits, HDF uptake in South Korea remains low, with only 11.9% of patients receiving HDF in 2024. The use of HVHDF, which requires greater resource intensity, is likely to be even more limited, due to the **lack of premium reimbursement**.

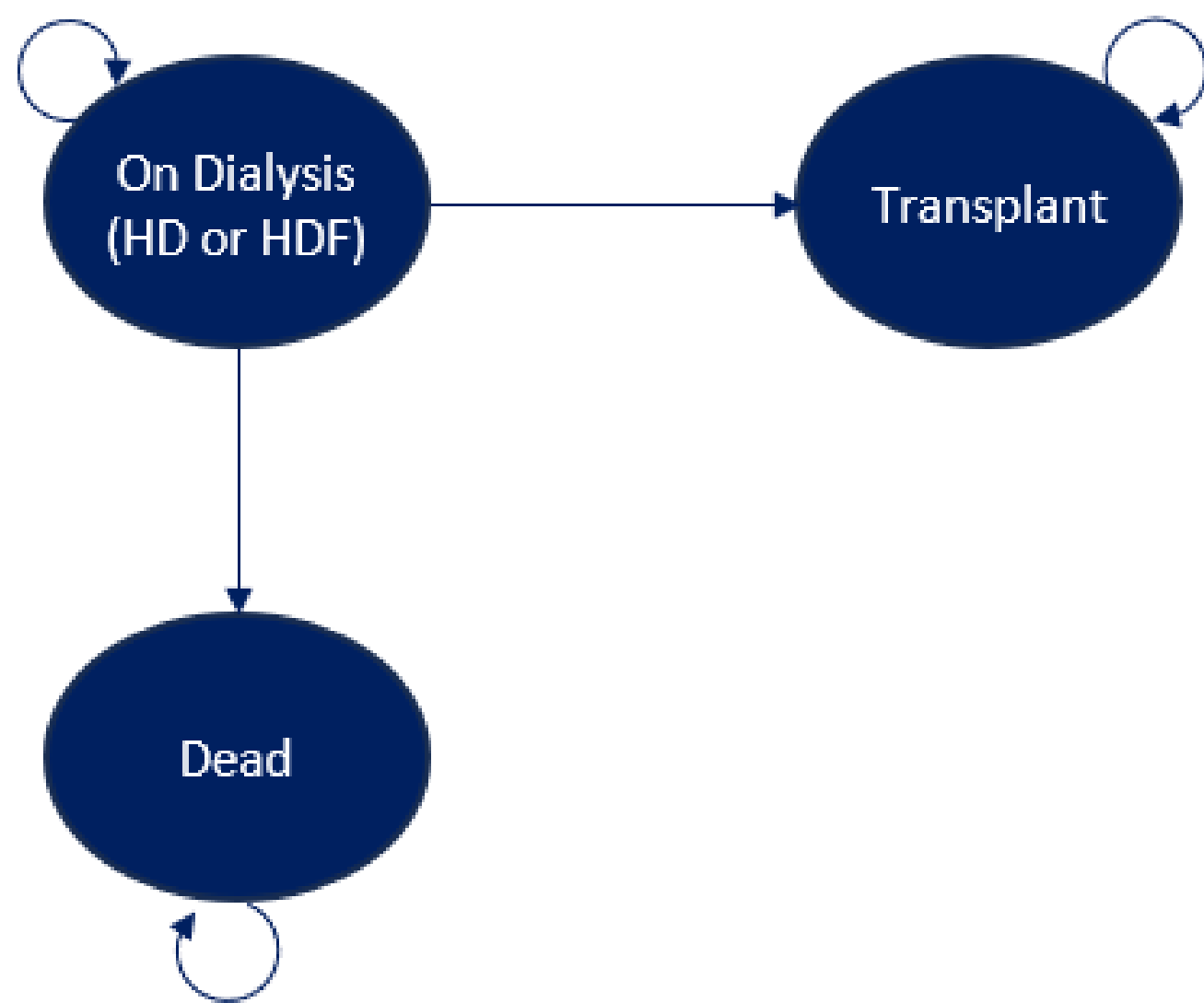
OBJECTIVE

This study aims to evaluate the cost-effectiveness of HVHDF compared to HD in the South Korean healthcare setting.

METHOD

- A deterministic cost-utility model was created based on the model of the CONVINCe trial using Korean data. The Markov model structure (Figure 1) and key assumptions followed the CONVINCe model¹. **Two scenarios** were assessed: (1) baseline Korean healthcare system perspective and (2) excluding costs in additional life years gained.
- Included costs comprised of dialysis intervention (disposables, staff, dialysis machines, utilities, water purification systems, and vascular access maintenance), hospitalization and ESA costs based on Korean data. HVHDF effects on hospitalization were informed by Zhang et al. 2025², ESA effects by NICE 2018³, and utility and mortality effects by the CONVINCe trial^{1,4}.

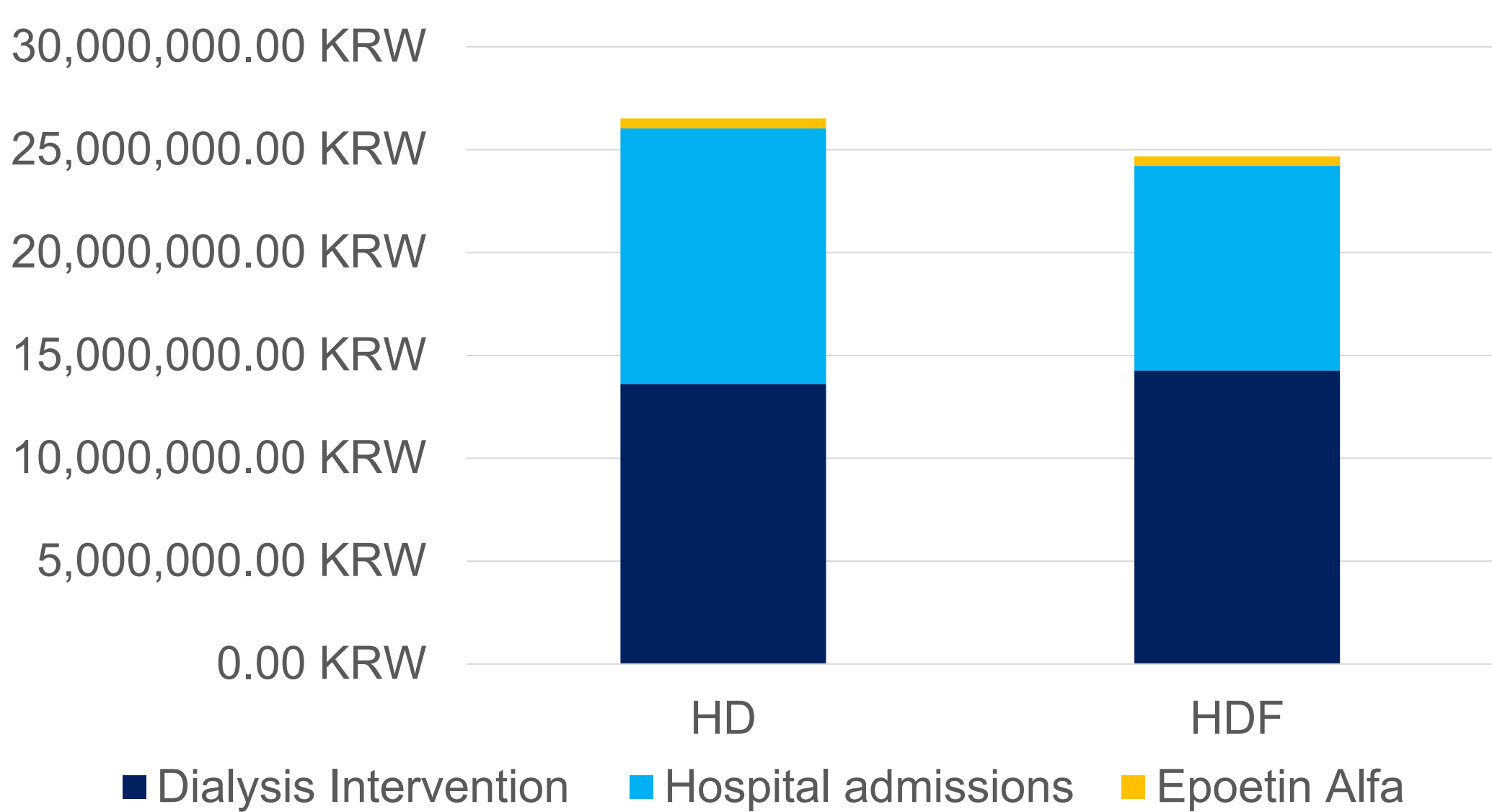
Figure 1: Markov cohort model



RESULTS

- In scenario (1) HVHDF was associated with 0.94 QALY gains versus HD, with total per-patient costs of 412,118,396.37KRW versus 397,623,754.23KRW, respectively. The ICER was estimated at 15,482,643.33KRW/QALY gained.
- In scenario (2) the ICER was (-1,445,679.94KRW/QALY) indicating HVHDF may be a **cost-saving therapy** when costs of additional life years are excluded.
- Hospitalization savings** were the main driver of cost offsets. Conversely, additional costs were mainly incurred during additional life years gained and not by HVHDF intervention costs.

Figure 2: Annual Per Patient Costs



Scenario 1: Baseline Korean healthcare system perspective

	LYs	QALYs	Costs	ICER
HD	13.62	9.30	397,623,754.23 KRW	15,482,643.33
HDF	14.80	10.23	412,118,396.37 KRW	
Incremental	1.18	0.9	14,494,642.14 KRW	

Scenario 2: Excluding costs in additional life years gained

	LYs	QALYs	Costs	ICER
HD	10.33	7.16	141,865,957.58 KRW	-1,445,679.94
HDF	11.77	8.33	140,183,844.43 KRW	
Incremental	1.44	1.2	-1,682,113.15 KRW	

CONCLUSIONS

- HVHDF remained **cost-effective** at the South Korean willingness-to-pay threshold of 30million KRW.
- Exclusion of costs incurred by additional life years gained resulted in HVHDF becoming **cost saving**, due to reduction in overall healthcare cost driven by decreased hospitalization and medication.
- Further evaluation of premium reimbursement may support increased HVHDF uptake in South Korea.

CONTACT INFORMATION

Jovana Petrovic Vorkapic, Jovana.Petrovic@freseniusmedicalcare.com
Ellen Busink, Ellen.Busink@freseniusmedicalcare.com

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