Cost-effectiveness of Finerenone for Chinese Patients with Heart Failure and Left Ventricular Ejection Fraction (LVEF) ≥40%

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INTRODUCTION

- Heart failure (HF) is a progressive clinical syndrome associated with substantial morbidity, mortality, and healthcare resource use. In China, the prevalence of HF continues to increase with population ageing and the growing burden of cardiovascular and metabolic diseases. Recurrent hospitalizations are common among patients with HF and represent a major driver of healthcare costs [1,2].
- Patients with HF and left ventricular ejection fraction (LVEF) ≥40%, including those with mildly reduced or preserved ejection fraction, account for a considerable proportion of the overall HF population. Guideline-directed treatment options for these patients remain limited, particularly compared with HFrEF, where multiple therapies are available, highlighting a substantial unmet treatment need [3–5].
- Finerenone, a selective nonsteroidal mineralocorticoid receptor antagonist, significantly reduced the composite of total worsening HF events and cardiovascular death versus placebo in FINEARTS-HF [6].

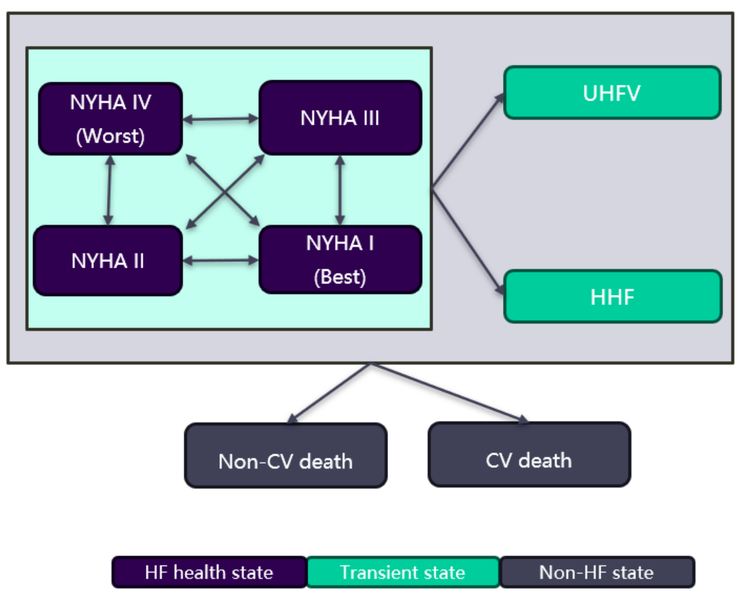
OBJECTIVES

- To evaluate the cost-effectiveness of finerenone plus standard of care (SoC) versus SoC alone for Chinese adults with heart failure and LVEF ≥40%. The study aimed to inform healthcare decision-making and resource allocation in China.

METHODS

- A De Novo Health Economic Markov model was adapted to estimate lifetime costs, life-years (LYs), quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratios (ICERs) from the Chinese healthcare system perspective **(Figure 1)** [7].
- The modelled population was based on the Chinese subgroup of FINEARTS-HF and included adults aged ≥40 years with symptomatic HF, New York Heart Association (NYHA) class II–IV, and LVEF ≥40%. The model included four health states defined by NYHA classes I–IV and an absorbing death state. Patients could transition between NYHA classes and experience recurrent hospitalizations for HF (HHF) and urgent HF visits (UHFVs).
- A 28-day cycle length, lifetime horizon, and willingness-to-pay (WTP) threshold of CNY 99,665/QALY (1× China's 2025 GDP per capita) were applied. The analysis incorporated **China-specific** health-state utilities and direct medical costs, including drug acquisition, routine HF management, HF-related events, adverse events (AEs), and death-related care.
- **Utilities:** Utilities were estimated from EQ-5D-5L data collected in FINEARTS-HF and mapped to the Chinese value set **(Table 1)** [8].
- **Clinical inputs:** Clinical inputs were derived from the Chinese subgroup and global population of FINEARTS-HF.
- As there is no appropriate clinical trial evidence between finerenone and spironolocatone, an exploratory comparison was conducted using a propensity score-matched, retrospective real-world cohort study [9].
- **Healthcare resource utilization costs:** Routine HF management costs were estimated using median medical service prices across 21 Chinese provinces and municipalities. The costs of HHF, UHFV, and death-related care were obtained from published literature and Chinese clinical expert interviews.
- **AE costs:** Treatment-emergent AEs were included if they occurred in at least 1% of patients in either treatment group and were expected to meaningfully affect costs or health outcomes. Event-specific costs were obtained from published literature and clinical expert input.

Figure 1. Model Structure



Abbreviation: CV, cardiovascular; Non-CV, non-cardiovascular; HF, heart failure; HHF, hospitalization for heart failure; NYHA, New York Heart Association; UHFV, urgent heart failure visit.

Table 1. Key cost and utility inputs (annual discount rate: 4.5% [10])

Item	Value	Source
Unit price of finerenone, CNY		
Finerenone (10mg)	6.45	Pharmacube database
Finerenone (20mg)	10.97	
HF event and death costs, CNY/event		
HHF	15,000.00	Clinical expert interviews
UHFV	4,000.00	
CV death	32,500.00	
Non-CV death	30,000.00	
Health-state utilities		
NYHA I	0.847	FINEARTS-HF global population
NYHA II	0.780	FINEARTS-HF Chinese subgroup
NYHA III	0.590	
NYHA IV	0.340	

Abbreviations: CNY, Chinese yuan; CV, cardiovascular; HF, heart failure; HHF, hospitalization for heart failure; NYHA, New York Heart Association; SoC, standard of care; UHFV, urgent heart failure visit.

RESULTS

- Finerenone plus SoC provided greater health benefits than SoC alone (7.04 vs. 6.67 QALYs) and was associated with slightly higher total costs (CNY 204,990 vs. CNY 190,764), resulting in an ICER of CNY 37,837 per QALY gained. This ICER was substantially below the WTP threshold of CNY 99,665 per QALY (Table 2).
  - The additional acquisition cost of finerenone was partially offset by reductions in HHF, UHFV, and death-related care costs. The QALY gain was driven primarily by longer survival, more time spent in NYHA class II, and fewer QALY losses associated with HHF.
- At the WTP threshold, finerenone plus SoC had a 91% probability of being cost-effective, and its ICER remained below the threshold across all scenarios evaluated (Table 3).
- The exploratory comparison with spironolactone also favored finerenone, with an ICER of CNY 26,355/QALY.

Table 2. Base-case and disaggregated results

Outcomes	Finerenone plus SoC	SoC alone	Δ Difference
Base-case results			
Total costs, CNY	204,990	190,764	14,226
Total QALYs	7.04	6.67	0.38
ICER			37,837
Cost breakdown, CNY			
Drug acquisition	43,478	28,161	15,317
Routine HF management	122,848	118,291	4,558
HHF	17,159	22,216	-5,057
UHFV	570	879	-308
Hyperkalemia	86	40	46
Other AEs	3,783	3,557	226
Death-related care	17,065	17,621	-556
QALY breakdown			
NYHA I	0.89	0.85	0.04
NYHA II	5.53	5.32	0.20
NYHA III	1.03	0.99	0.03
NYHA IV	0.02	0.02	0.00
HHF	-0.35	-0.45	0.10
UHFV	-0.01	-0.01	0.00
Hyperkalemia	-0.01	0.00	-0.01
Other AEs	-0.05	-0.05	0.00

Abbreviation: AEs, adverse events; CNY, Chinese yuan; HF, heart failure; HHF, hospitalization for heart failure; ICER, incremental cost-effectiveness ratio; LY, life-year; NYHA, New York Heart Association; QALY, quality-adjusted life-year; SoC, standard of care; UHFV, urgent heart failure visit.

Table 3. Scenario analysis results

Scenario	ICER, CNY/QALY
10-year time horizon	42,132
20-year time horizon	38,297

Abbreviation: CNY, Chinese yuan; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year; SoC, standard of care.

Discussion

- The findings remained robust across sensitivity and scenario analyses, with finerenone remaining cost-effective across all alternative time horizons, supporting its consistent long-term economic value under different modelling assumptions.
- The exploratory comparison with spironolactone should be treated with caution as it is based on a retrospective real-world patient cohort study and additional modelling assumptions.

Conclusion

- Finerenone plus SoC is cost-effective versus SoC alone for Chinese adults with HF and LVEF ≥40%. The findings support the potential clinical and economic value of finerenone and may inform healthcare decision-making and resource allocation in China.

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Disclosure

- LC, KF, CL and RX work at Bayer.
- JM, JR, LL and MH are employees of IQVIA, which received funding from Bayer for this study.
- CZ is a chief physician employed at Qilu Hospital of Shandong University and responsible for directing this study.
- The authors have no other relevant conflicts of interest to disclose.

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