114234 Cost-Effectiveness of Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir Alafenamide Fumarate Tablets in Acquired Immunodeficiency Syndrome From The Chinese Payer Perspective

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BACKGROUND

- According to National Health Commission of China, in October 2020 there were 1.05 million people of all ages living with human immunodeficiency virus (HIV) in China, and 112,000 current cases of acquired immunodeficiency syndrome (AIDs).[1]
- Although the efficacy of traditional 3-drug combination regimens for the treatment of HIV is well established in China, concerns remain about tolerability, toxicities, and adverse events (AEs).
- On January 1, 2020, elvitegravir, cobicistat/emtricitabine/tenofovir alafenamide fumarate tablets (E/C/F/TAF), as a fixed-dose-combination tablet for once-daily administration, was included in the Chinese National Medical Insurance List.

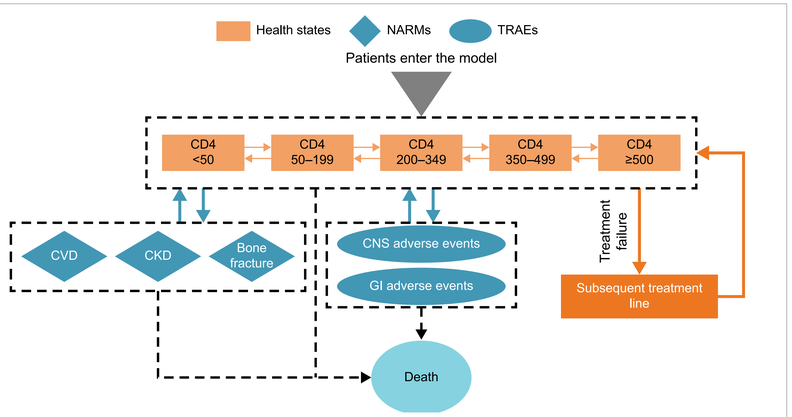
OBJECTIVES

- This study aimed to evaluate the cost-effectiveness of E/C/F/TAF compared with other combination regimens for the treatment of AIDS under the current reimbursement price from the Chinese payer perspective.

METHODS

- A long-term Markov model (**Figure 1**) simulated the progression of a hypothetical cohort of 10,000 patients with AIDS over a lifetime horizon.
  - It considered all patients, and subgroups of treatment-naïve and virologically suppressed, treatment-experienced patients.
  - According to market research, about 20% are treatment-naïve patients, and 69% are male.[2]

Figure 1. Model structure

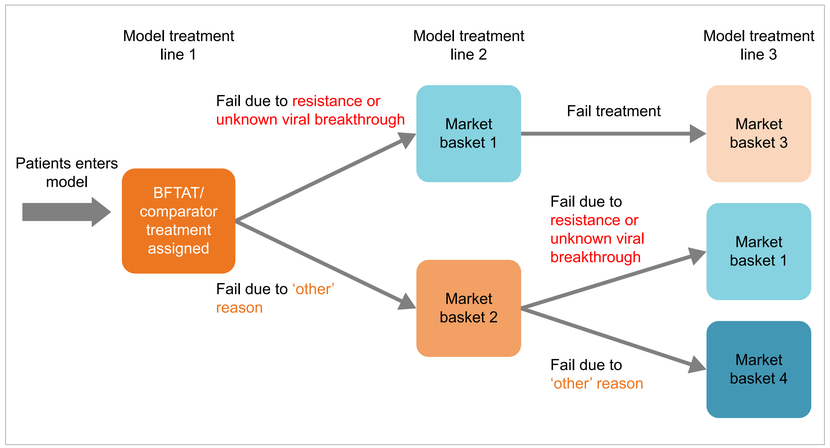


Abbreviations: CKD, chronic kidney disease; CNS, central nervous system; CVD, cardiovascular disease; GI, gastrointestinal; NARM, non-AIDS related comorbidities; TRAEs, treatment-related adverse events

METHODS (CONT.)

- E/C/F/TAF was compared with abacavir/dolutegravir/lamivudine (DTG/ABC/3TC), and tenofovir/alafenamide/emtricitabine plus raltegravir (TAF/FTC+RAL) or plus dolutegravir (TAF/FTC+DTG).
- Clinical efficacy and safety data for each treatment regimen were sourced from appropriate clinical trials and a network meta-analysis.[3-7]
- Patients may switch from their current ART regimen and initiate an alternative ART regimen for a number of reasons.
  - Assuming patients receive at most two re-treatments, treatment switching was split into two categories (**Figure 2**).

Figure 2. Diagram of treatment switching pathways



- Total costs in the model consisted of drug acquisition costs, testing and monitoring costs, healthcare management costs, and costs of treatment-related adverse events; cost data were sourced from published literature and expert opinion.[8-16]
- The primary outcomes from the model included total costs, quality-adjusted life-years (QALYs) and incremental cost-effectiveness ratios (ICERs).
- Costs (in 2021 CNY) and outcomes were discounted at 3.5%.

RESULTS

- For Chinese AIDS patients with different cardiovascular risks, whether treatment-naïve or pre-treated, E/C/F/TAF significantly reduced treatment failure rate, incidence of cardiovascular disease, and progression to end-stage renal disease.
- E/C/F/TAF resulted in 11.46 QALYs over a lifetime, which was higher than the 3 comparators (**Table 1**).

RESULTS (CONT.)

- The clinical effectiveness of E/C/F/TAF led to reduced unnecessary expenses, and the lowest total cost of treatment (lifetime cost 1,071,637 CNY) vs the 3 comparators (**Table 1**).
- E/C/F/TAF remained cost-effective throughout a range of sensitivity analyses where key assumptions were tested.

Table 1. Costs and cost-effectiveness per patient

Regimen	Total Costs	QALYs	ICER
E/C/F/TAF	**1,071,637**	**11.46**	**Dominant**
DTG/ABC/3TC	1,131,631	11.45	Reference
TAF/FTC+RAL	1,316,384	11.44	Reference
TAF/FTC+DTG	1,131,339	11.45	Reference

E/C/F/TAF: elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide fumarate; DTG/ABC/3TC: abacavir/dolutegravir/lamivudine; TAF/FTC+RAL: tenofovir/alafenamide/emtricitabine plus raltegravir; TAF/FTC+DTG: tenofovir/alafenamide/emtricitabine plus dolutegravir.

CONCLUSIONS

- Compared with 3 other antiviral regimens (DTG/ABC/3TC, TAF/FTC+RAL, TAF/FTC+DTG), E/C/F/TAF has favourable effectiveness regarding with lifetime QALYs.
- Additionally, its total treatment cost is the lowest, and thus it has a favourable cost-saving advantage.
- E/C/F/TAF could be a sustainable alternative to currently available treatments.

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