

Cost-Utility Analysis of Single-Inhaler Indacaterol Acetate/Glycopyrronium Bromide/Mometasone Furoate for Maintenance Therapy in Patients With Moderate-to-Severe Uncontrolled Asthma in China

Yishuang Chen¹, Qiyun Jiang¹, Jiamin Qiu², Haiyan Huang¹, Huazhong Hu¹, Jianwei Xuan³, Qun Zhang^{1*} ¹Office of Drug Clinical Trial Institution, the Third Affiliated Hospital, Southern Medical University, Guangzhou, Guangdong, China ²School of Pharmaceutical Sciences, Southern Medical University, Guangzhou, Guangdong, China ³Health Economic Research Institute, School of Pharmaceutical Sciences, Sun Yat-sen University, Guangzhou, Guangdong, China

Background

Indacaterol acetate/glycopyrronium bromide/mometasone furoate (IND/GLY/MF) is currently the only triple inhalation therapy approved for asthma indication in China and has demonstrated favorable clinical outcomes in Phase III trials.

Objective

This study aims to evaluate the cost-effectiveness of IND/GLY/MF compared to salmeterol/fluticasone+tiotropium bromide (SAL/FLU+TIO) and SAL/FLU, respectively, for the treatment of adult patients with uncontrolled moderate-to-severe asthma.

1.Base-Case Analysis

 Compared to SAL/FLU+TIO, IND/GLY/MF had lower costs (¥111,462.24 vs. ¥206,334.86) and higher QALYs (15.05 QALYs vs. 14.15 QALYs), demonstrating absolute dominance.

Results

• Compared to SAL/FLU, IND/GLY/MF had higher costs (¥112,239.11 vs. ¥108,609.94) but higher QALYs (14.52 QALYs vs. 12.33 QALYs), with an ICER of ¥1,658.24/QALY. IND/GLY/MF was cost-effective at the willingness-to-pay threshold of ¥89,358/QALY (1x China's GPD per capita).

Method

Model Structure

- A Markov model was constructed from the perspective of the Chinese healthcare system, encompassing four states: no asthma exacerbation, mild-to-moderate acute exacerbation, severe acute exacerbation, and death.
- Patients with mild to moderate acute exacerbations are assumed to self-manage to relieve acute asthma exacerbations.
- Severe acute exacerbations are further divided into three sub-states based on subsequent treatment measures: outpatient, ED visit, and hospitalization.

Figure 1 | Model structure

Table 1 | The cost, effectiveness and incremental cost-effectiveness ratios (ICERs)

	Drug	Cost(¥)	Incremental Cost (¥)	QALYs	Incremental QALYs	ICER (¥/QALY)
A	IND/GLY/MF	111,462.24	-	15.05	-	-
	SAL/FLU+TIO	206,334.86	-94,872.62	14.15	0.90	dominated
B	IND/GLY/MF	112,239.11	-	14.52		-
	SAL/FLU	108,609.94	3,629.17	12.33	2.19	1,658.24

2.Sensitivity Analysis

• The base case results in sensitivity analysis were robust to all assumptions and parameter changes.

2.1 One-way Sensitivity Analysis





uncertainty of input parameters.

Model parameters

• Exacerbation rates were derived from ARGON and IRIDIUM

2.2 Probabilistic Sensitivity Analysis

Figure 3 | Cost effectiveness plane



Figure 4 | Cost-effectiveness acceptability curve

clinical trials.

• Mortality rates, costs, and utility values were sourced from public databases and published literature.

Conclusion

The single-inhaler IND/GLY/MF offered better clinical efficacy and was considered cost-effective with increased QALY gain for the maintenance therapy in Chinese patients with moderateto-severe uncontrolled asthma.



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