

Cost-effectiveness Analysis of Fecal Microbiota Transplantation in Recurrent or Refractory *Clostridioides difficile* Infection in Taiwan

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Objectives:

The incidence and financial burden associated with recurrent *Clostridioides difficile* infection (rCDI) are rising globally, posing significant challenges in healthcare system. Besides, studies over the years have proved that patients with inflammatory bowel disease (IBD) have a higher incidence of rCDI and worse outcomes. Compared to antibiotic treatments, Fecal Microbiota Transplantation (FMT) is a more effective treatment for rCDI. Considering the high cost of FMT, there's a need to investigate the cost-effectiveness in Taiwan to make the best use under limited finance resources.

Material and Methods:

Decision tree analysis was applied to evaluate the cost and effectiveness of different treatments for rCDI patients with a time horizon of 90 days from payer perspective. Willingness-to-pay (WTP) was set as 3 time of GDP per capita. Deterministic and probabilistic sensitivity analyses were performed to understand the uncertainty.

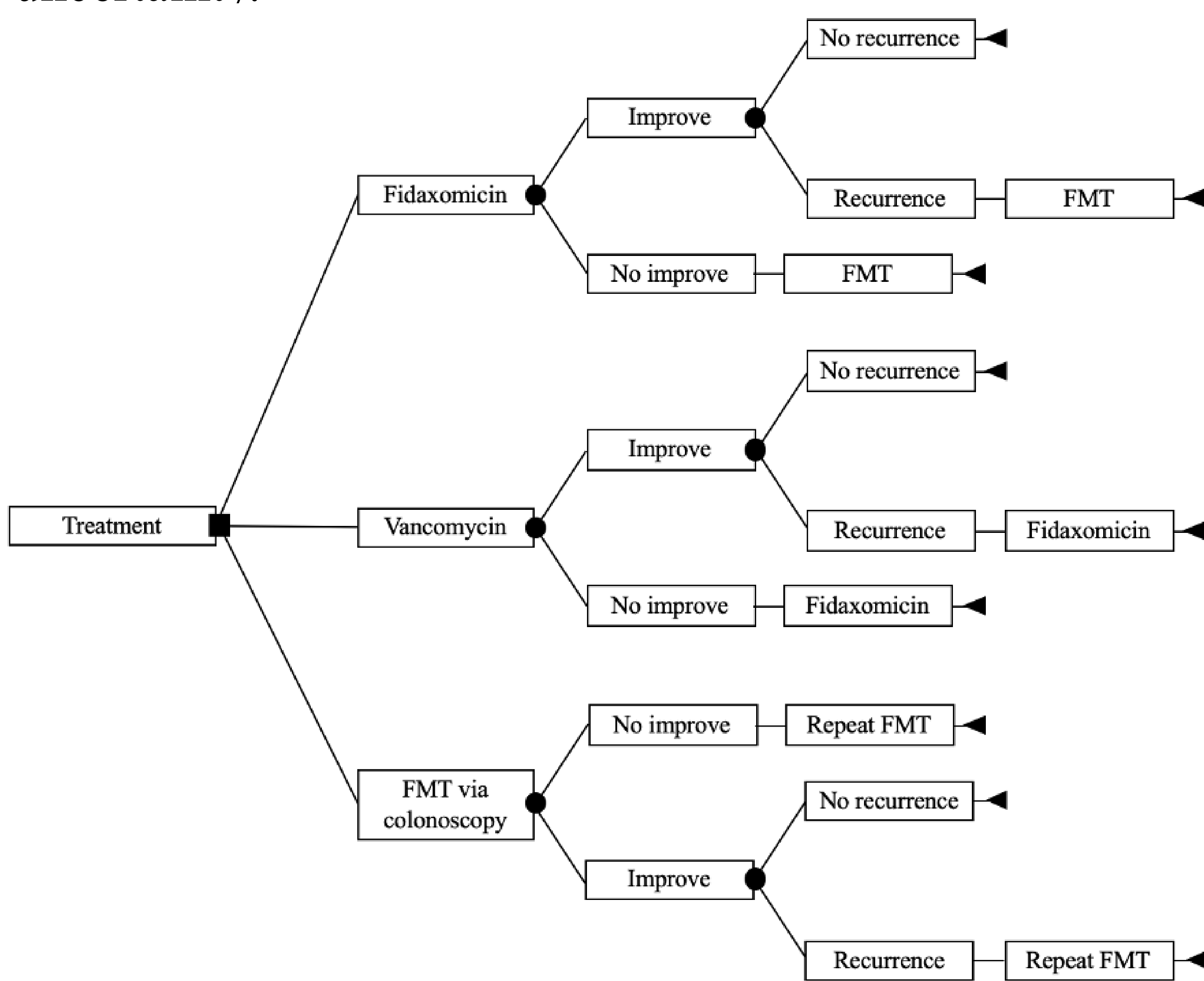


Figure 1. Decision Tres structure used to investigate the cost-effectiveness of FMT vs antibiotics in recurrent and/or refractory CDI in Taiwan

Results:

Compared to vancomycin, FMT was cost-effective in overall rCDI patients as well as IBD patients with rCDI [USD101,449.40 (NT\$ 2,840,583.33)/quality-adjusted life year (QALY) gained and USD95,020.35 (NT\$ 2,660,569.86)/QALY gained] respectively. Compared to fidaxomicin, FMT was not cost-effective [USD123,996.29 (NT\$ 3,471,896.36)/ QALY gained] and slightly increased QALY (0.012 QALY gained) in IBD patients with rCDI.

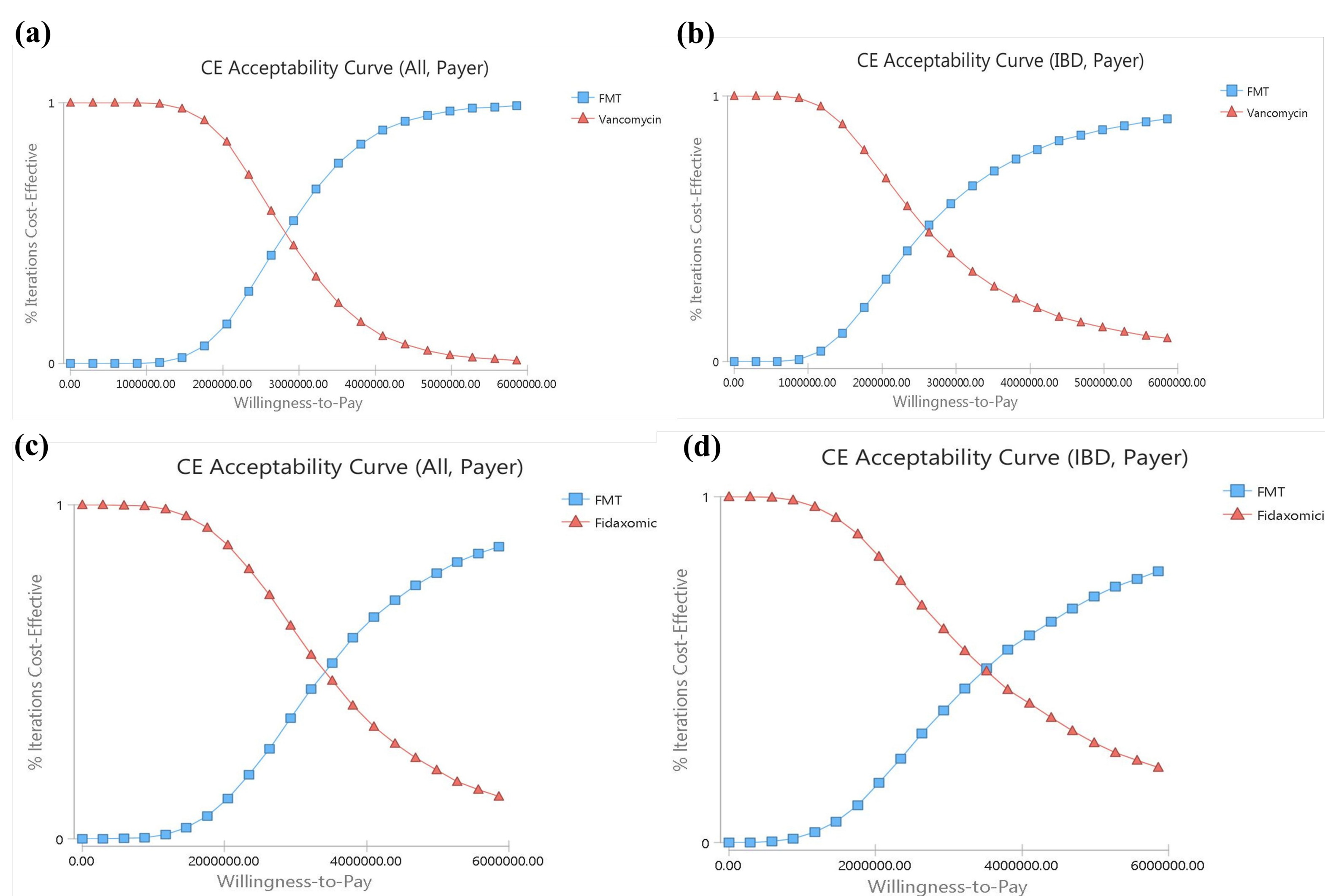


Figure 2. Cost effectiveness acceptability curves. (a) FMT vs vancomycin in overall (b) FMT vs vancomycin in CDI and IBD patient (c) FMT vs fidaxomicin in overall patient (d) FMT vs fidaxomicin in CDI and IBD patient; CE: cost effectiveness

Conclusions:

FMT via colonoscopy appeared to have better QALY gained compared to vancomycin and fidaxomicin in all scenarios, but FMT was only cost-effective compared to vancomycin in rCDI and IBD patients with rCDI patients in Taiwan.

