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DIAGNOSING *HELICOBACTER PYLORI INFECTION – WHAT'S COST-EFFECTIVE IN SINGAPORE?*

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Background

Helicobacter pylori (HP) infection is the most important causal factor for gastric adenocarcinoma and affects approximately 50% of the world's population. Eradication of *HP* infection has shown potential to reduce gastric cancer risk, with screening and treatment of *HP* recommended as a strategy for gastric cancer prevention. This study aims to evaluate costs and effectiveness associated with six strategies for preventing gastric cancer in the Singapore population: no screening, serology coupled with urea breath test (UBT), faecal antigen test (FAT), serology screening coupled with gastroscopy, gastroscopy only, and UBT.

Methods

A markov model was constructed from the public healthcare provider perspective where one-off screening is adopted for those aged 40. The incremental cost-effectiveness ratios (ICERs) were compared across the six strategies. The uncertainty around the ICER was addressed by tornado analyses and the three most influential variables were subjected to a 3-way sensitivity analysis.

Results

The ICER of serology coupled with UBT versus no screening was $17,994/QALY, which is within the willingness to pay threshold (WTP) of $70,000/QALY. Other strategies such as serology screening coupled with gastroscopy and FAT were dominated. Referencing a common baseline however, all strategies except gastroscopy were within the WTP threshold compared with no screening. The three most influential variables on the ICER were the probability of gastric cancer in *HP* infected persons, probability of gastric cancer in *HP* eradicated persons, and prevalence of *HP* infection.

Conclusion

Serology coupled with UBT versus no screening is the most cost-effective strategy, suggesting this as the optimal approach.