Aim

To evaluate the safety, effectiveness and cost-effectiveness of genotypic antiretroviral resistance testing (GART) in patients with human immunodeficiency virus (HIV).

Results and conclusions

Safety

GART is a non-invasive test conducted on patients' blood samples and is not considered to present safety issues for patients.

Effectiveness

Identified studies demonstrated the use of GART in highly active antiretroviral therapy (HAART)-treatment experienced patients with HIV. No suitable studies investigating treatment-naïve patients with HIV, or GART-guided therapy to reduce the risk of viral transmission from mother to child among pregnant women with HIV were found. Compared with standard clinical care alone, GART-guided HAART for treatment-experienced patients significantly reduced plasma HIV viral load at three and six month time points. The proportion of patients whose viral load was below detectable limits increased at these time points.

Cost-effectiveness

Based on the results of the base case analysis and sensitivity analyses, GART-guided HAART was less costly and more clinically effective when compared with standard clinical care. GART-guided HAART resulted in an average cost saving of $3043 per person and an increase of 0.005 quality-adjusted life years per person over the patient's entire life span. The sensitivity analyses showed that GART-guided HAART remained the less costly, more clinically effective strategy compared with the standard clinical care, despite variation in a number of key model inputs.

Methods

MSAC conducted a systematic literature review pertaining to GART. Direct evidence assessing the impact of GART on health outcomes was sought. An economic evaluation was performed that modelled the progression from one treatment regimen to the next based on the HAART specific probability of virological failure and the effectiveness of GART to reduce treatment related virological failure.