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# Health effects and cost-effectiveness of genotype-guided treatment for depression

# SUMMARY

**Objectives:** To estimate the health effects of genotype-guided treatment for depression and the cost-effectiveness and budget impact of the intervention in Estonia.

**Methods:** A systematic literature search was performed in PubMed to identify randomised controlled trials (RCT) on the effectiveness and safety of genotype-guided treatment in depression. A meta-analysis of the effectiveness and safety and a systematic review of the cost-effectiveness was conducted. 24-week time perspective was used to perform the cost-effectiveness analysis as there was no efficacy data beyond the period. A cohort consisted of people who had previously diagnosed moderate to severe depression and for whom antidepressant treatment was indicated for the first time. Probabilities and quality of life estimates were based on published literature. The analysis used the perspective of the Estonian Health Insurance Fund (EHIF), which was taken into account in determining the costs for the analysis. The treatment costs were calculated based on resource use data from EHIF health care service prices. Results were presented in terms of costs, quality-adjusted life-years (QALY) and incremental cost-effectiveness ratios (ICER). A 5-year budget impact analysis was carried out from the healthcare payer perspective.

**Results:** Based on the results of the meta-analysis of seven RCTs can be concluded with moderate evidence that genotype-guided antidepressant treatment is effective in increasing symptom remission and treatment response rate compared to usual care. It is important to consider that the primary studies in the meta-analysis were of low to moderate quality.

The cost-effectiveness analysis showed that the ICER was €30,700 per QALY gained. In sensitivity analysis, the results were most influenced by the price of gene test. Applying genotype-guided antidepressant treatment in the population with moderate to severe depression for whom antidepressant treatment was indicated for the first time, would cost an additional €5.4 million within five years for EHIF compared to usual care.

**Conclusions:** Genotype-guided antidepressant treatment is cost-effective in moderate to severe depression compared to usual care in Estonia, although the evidence of effectiveness was of moderate quality.

**Citation:** Juus E, Haring L, Põld M, Milani L, Alloja J, Krebs K, Jürisson M. Farmakogeneetilise analüüsi tervisekasu ja kulutõhusus depressiooni ravis: tervisetehnoloogia hindamise raport TTH61. Tartu: Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2022.