**Background**

- Pharmacogenomic testing has emerged as a possible data-driven approach to inform treatment decisions for patients with Major Depressive Disorder (MDD).
- However, there is mixed evidence available for the utility of pharmacogenomic testing depending on the test used and study population.
- Meta-analyses provide a high level of evidence and can be useful in evaluating the overall utility of a testing approach for clinical use.

**Objective**

We present the results of a meta-analysis of prospective, two-arm studies examining the clinical utility of using the combinational pharmacogenomic test, GeneSight Psychotropic, to inform treatment decisions for patients with MDD who had at least one prior medication failure.

**Methods**

- The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Guidelines were utilized for this meta-analysis.
- A systematic search was performed, and all identified reports were screened to identify two-arm, prospective studies evaluating the clinical utility of this specific test that included patients ≥18 years of age diagnosed with MDD who had at least one prior medication failure.
- Overall, 1,556 patients were included from four studies (two open-label studies and two randomized controlled trials (RCTs)).
- All included studies assessed symptom improvement, response, and remission using the 17-item Hamilton Depression Rating Scale (HAM-D17).
- The pooled mean effect of symptom improvement and pooled relative risk ratio of response and remission were calculated using a random effect model.
- Sub-analyses were performed according to study type.

**Results**

- Patient outcomes were significantly improved for patients with MDD whose care was guided by the specific combinational pharmacogenomic test results compared to unguided-care (Figure 1).
- Heterogeneity in effect size across studies was significant, but moderate for symptom improvement, and not significant for response and remission.

**Conclusions**

- In a meta-analysis of four independent studies, all outcomes were significantly improved for patients in the GeneSight Psychotropic-guided care arm versus unguided-care.
- This meta-analysis adds to the body of evidence supporting the clinical utility of using GeneSight Psychotropic to guide medication selection for patients with MDD.