



Patient Case Study

**IMPACT
OF DOSE
REDUCTION**

**How the GeneSight
test helped reduce
polypharmacy in an
elderly patient with
multiple psychiatric
conditions**



Why use the GeneSight® Psychotropic test?

The GeneSight test delivers clinically actionable insights to help improve outcomes for many types of patients, from those early in their treatment journeys to those with more complex histories.

In this case study, the clinician started a **new therapeutic relationship** with a patient who had **already trialed several medications** for multiple psychiatric diagnoses. The clinician ordered the GeneSight test to help **inform the next steps** in the patient's journey.



Adapted from a real patient case:

A complex treatment regimen



Patient Information

Age: 67 **Race:** White **Sex:** Female

Past medical history: Anemia, hypercholesterolemia, basal cell carcinoma, gastroesophageal reflux disease

Social history: One alcoholic drink/week

Family history: Sister with depression, anxiety

Smoking status: Non-smoker

Clinical Presentation

Target psychiatric symptoms:

Excessive worry, crying, rumination, helplessness, low energy, sleep disturbance, anxiousness, thoughts of death

Primary psychiatric diagnosis:

Recurrent major depressive disorder, severe without psychotic features

Other relevant diagnoses:

Chronic pain, dysthymic depression, seasonal affective disorder, panic attacks with agoraphobia, post-traumatic stress disorder

Treatment History

Previous medication trials:

- Wellbutrin
- Lexapro
- Seroquel
- Klonopin
- BuSpar
- Remeron

Medication list at the time of GeneSight testing:

- BuSpar 30 mg 2x daily
- Ativan 1 mg as needed
- Neurontin 300 mg 2x daily
- Viibryd 40 mg daily
- Prozac 10 mg daily
- Remeron 15 mg nightly

Treatment changes being considered prior to GeneSight testing:

- Reducing the number of prescribed medications
- Decreasing Remeron to 7.5 mg nightly
- Therapy for post-traumatic stress disorder

Optimizing a treatment plan with GeneSight[®] test insights

At the time of testing, the patient had already trialed several classes of psychotropic medications with different mechanisms of action. The clinician suspected the patient's genetics might help explain why the patient's symptoms were persisting even while taking multiple antidepressants and anxiolytics. They noted that Viibryd, Prozac, and Remeron are all metabolized, at least in part, by CYP2D6. Of the over three million patients who have taken the GeneSight test, about half have a genetic variation in CYP2D6 that may alter the expected metabolism of many medications.*

The clinician decided to order the GeneSight test to help inform the patient's treatment plan and potentially **reduce the number of prescribed medications**.

*Phenotype frequency is based on internal Myriad Genetics data of over three million tested patients.

Patient's medication adjustments after GeneSight testing

Discontinued after testing

Prescribed or adjusted after testing

Antidepressants

Non-Smokers		
Smoking is defined as the daily inhalation of burning plant material (cigarettes, marijuana), and excludes vaping and e-cigarettes. This is used to determine medication results.		
Use as Directed	Moderate Gene-drug Interaction	Significant Gene-drug Interaction
desvenlafaxine (Pristiq [®])	vilazodone (Viibryd [®]) 1	bupropion (Wellbutrin [®]) 1,6
levomilnacipran (Fetzima [®])	trazodone (Desyrel [®]) 1,7	fluoxetine (Prozac [®]) 1,6
		selegiline (Emsam [®]) 1,6
		venlafaxine (Effexor [®]) 1,6
		citalopram (Celexa [®]) 1,4,6
		escitalopram (Lexapro [®]) 1,4,6
		sertraline (Zoloft [®]) 1,4,6
		mirtazapine (Remeron [®]) 1,6,7
		amitriptyline (Elavil [®]) 1,6,8
		clomipramine (Anafranil [®]) 1,6,8
		desipramine (Norpramin [®]) 1,6,8
		doxepin (Sinequan [®]) 1,6,8
		imipramine (Tofranil [®]) 1,6,8
		nortriptyline (Pamelor [®]) 1,6,8
		vortioxetine (Trintellix [®]) 1,6,8
		paroxetine (Paxil [®]) 1,4,6,8
		duloxetine (Cymbalta [®]) 1,6,7,8
		fluvoxamine (Luvox [®]) 1,6,7,8

Anxiolytics and Hypnotics

Non-Smokers		
Smoking is defined as the daily inhalation of burning plant material (cigarettes, marijuana), and excludes vaping and e-cigarettes. This is used to determine medication results.		
Use as Directed	Moderate Gene-drug Interaction	Significant Gene-drug Interaction
alprazolam (Xanax [®])		diazepam (Valium [®]) 1,6
buspirone (BuSpar [®])		propranolol (Inderal [®]) 1,6,7,8
chlordiazepoxide (Librium [®])		
clonazepam (Klonopin [®])		
clorazepate (Tranxene [®])		
eszopiclone (Lunesta [®])		
lemborexant (Dayvigo [®])		
lorazepam (Ativan [®])		
oxazepam (Serax [®])		
suvorexant (Belsomra [®])		
temazepam (Restoril [®])		
zolpidem (Ambien [®])		

Mood Stabilizers

This section applies to smokers and non-smokers. The presence of the highly inducible CYP1A2 variant is not predicted to influence these medications.		
Use as Directed	Moderate Gene-drug Interaction	Significant Gene-drug Interaction
carbamazepine (Tegretol [®])		
lamotrigine (Lamictal [®])		
oxcarbazepine (Trileptal [®])		
valproic acid/divalproex (Depakote [®])		
No Proven Genetic Markers		
gabapentin (Neurontin [®]) 10	lithium (Eskalith [®]) 10	topiramate (Topamax [®]) 10

Clinical Considerations

- 1: Serum level may be too high, lower doses may be required.
- 4: Genotype may impact drug mechanism of action and result in moderately reduced efficacy.
- 6: Use of this drug may increase risk of side effects.
- 7: Smoking status changes the results of this medication. **See next section labeled Smokers for smoking results.**
- 8: FDA label identifies a potential gene-drug interaction for this medication.
- 10: While this medication does not have clinically proven genetic markers that allow it to be categorized, it may be an effective choice based on other clinical factors.

Treatment decisions and outcomes after ordering the GeneSight test

As part of a comprehensive medical assessment, GeneSight results helped the clinician adjust the patient's treatment plan and:

- Direct the patient to taper and discontinue Viibryd and Prozac due to gene-drug interactions with CYP2C19 and CYP2D6, which could result in serum levels being too high for those medications (Clinical Consideration 1)
- Discontinue BuSpar, Ativan, and Neurontin due to other factors
- Suggest that the patient add L-methylfolate 7.5 mg due to her MTHFR genotype of C/T
- Prescribe 50 mg of Pristiq, categorized as "Use as Directed," because the patient's genetic results for the genes tested are unlikely to impact outcomes with Pristiq
- Reduce the dose of Remeron to 7.5 mg as the significant gene-drug interaction identified for this medication suggests lower doses may be required (Clinical Consideration 1). The clinician also made the patient aware that if they start smoking, their Remeron dose may need to be altered (Clinical Consideration 7)

After these treatment changes, the patient became less tearful, started exercising, showed improved sleep, and no longer had panic attacks. They reported being able to leave the house, volunteer, be active in church, and use coping mechanisms such as distraction when feeling anxious.



Interested in viewing the patient's full report?

Scan the QR code



Insights from the GeneSight test helped this patient's clinician adjust her treatment plan, which resulted in:

- Reduction of polypharmacy
- Lowering a medication dose
- Reduced medication side effects

"I got my life back and am beginning to feel happy for the first time in my life."

—Case study patient after GeneSight testing

Want to learn more about the GeneSight test?

Scan the QR code or visit genesight.com today.

