



Understanding Pharmacogenomics (PGx) and Why It Matters

Pharmacogenomic (PGx) testing analyzes a patient's DNA to determine how their body metabolizes and responds to medications. Because your genes never change, a single PGx test provides lifetime guidance for safer, more effective prescribing decisions.

Traditional prescribing can often rely on cycling through multiple medications and doses before finding one that works. PGx eliminates this uncertainty by showing in advance which drugs are likely to be effective, which may be ineffective, and which could cause harm. Doctors already know how drugs act on the body; PGx answers the critical question: how does the body act on the drug?

Why Adopt PGx Testing Now

Nearly every clinician recognizes the impact of genetics on medication response. 98% of physicians agree genetic variation influences drug efficacy and safety. Yet, fewer than 13% routinely order PGx testing today. This gap represents a unique opportunity for forward-thinking facilities to lead in safer, more precise prescribing.

The evidence supporting PGx grows stronger every year, with studies showing 99% of patients carry at least one actionable genetic variant. At the same time, widespread adoption of electronic health records and clinical decision support tools makes integration easier than ever. With the falling cost of genotyping, PGx has become both a clinically powerful and financially practical solution for modern healthcare.

TruLab Dx's PGx panel takes an evidence-based approach. Our panel is built on the medications that matter most in everyday practice, and focuses on the top 200 drugs prescribed in the United States.

Metabolizer Phenotypes and Real-World Examples

PGx testing classifies patients based on how their bodies process medications: poor, intermediate, normal, or ultrarapid metabolizers.

These differences explain why one resident may respond well to a drug while another does not. For example, a poor metabolizer of escitalopram (Lexapro®) may experience significant side effects at standard doses, while an ultrarapid metabolizer of sertraline (Zoloft®) may see little therapeutic benefit because the drug clears too quickly.

Similarly, pro-drugs like codeine require enzyme activation to provide pain relief; poor metabolizers may get no benefit at all. By identifying these differences before treatment begins, PGx helps clinicians avoid ineffective prescriptions and prevent dangerous adverse reactions.

Avoiding Adverse Drug Reactions (ADRs)

Adverse drug reactions (ADRs) remain one of the leading causes of harm in U.S. healthcare. Each year, more than 2.2 million serious ADRs occur in hospitalized patients, and over 100,000 deaths are directly attributed to medication reactions. In nursing homes and assisted living facilities, an estimated 350,000 ADRs occur annually,



often with devastating consequences. The risk grows significantly when patients take four or more medications, a common reality in long-term care. These statistics highlight the urgent need for a more precise, preventive approach to prescribing. One that PGx testing makes possible.

Modern medications are powerful, but they do not work the same way in every patient. Genetics is often the difference between a drug that is safe and effective and one that is ineffective or dangerous. By incorporating PGx into prescribing, facilities can reduce errors in treatment, prevent ADRs, optimize dosing, and improve patient quality of life. The result is safer care, fewer hospitalizations, and lower overall costs.

PGx transforms prescribing from guesswork into precision medicine, with nothing more than a simple cheek swab.

Clinical Benefits and Practical Adoption

PGx testing provides immediate and lasting benefits for patients and facilities alike. It helps clinicians identify the right drug at the right dose more quickly. Optimized dosing ensures patients receive therapeutic benefits without toxicity, while facilities save time and resources by avoiding costly, ineffective prescriptions. Results are added to the patient's medical record and remain valuable for life, guiding future prescribing decisions across specialties.

What PGx Results Reveal

The insights provided by PGx are directly actionable. Poor metabolizers may accumulate toxic drug levels, while ultrarapid metabolizers may clear drugs so quickly that standard doses are ineffective. Some patients experience hypersensitivity reactions, where even normal doses trigger severe side effects. By uncovering these risks, PGx testing explains why a therapy may fail and guides clinicians toward safer, more effective alternatives.

Who Should Receive PGx Testing?

PGx testing can benefit anyone, but it is especially valuable for patients who are on medications for chronic conditions.

In psychiatry, for example, 30–50% of patients do not respond to their first antidepressant, and PGx can help shorten the time to remission. In oncology, our panel covers over 60 cancer drugs, helping identify effective therapies or explaining why current regimens may not be working. PGx is equally impactful in cardiology, neurology, pain management, infectious disease, endocrinology, gastroenterology, and immunology.

AB 425 Cost and Coverage and Medicare Reimbursement

PGx testing is affordable and accessible. Patients with Medicare or Medicaid pay nothing out-of-pocket. For those with private insurance, costs are typically \$99 or less, and typically less than \$350. Facilities incur no costs to administer the test, yet gain lasting value as results are integrated into patient records.

In California, AB 425 further strengthens the case for PGx adoption by ensuring Medicare reimbursement for pharmacogenomic testing. For CAHF facilities, this means the ability to offer cutting-edge genetic testing to residents without financial risk. This improves care while aligning with state and federal reimbursement models.

Facility Benefits

For facilities, the advantages extend beyond patient safety. PGx testing reduces preventable hospitalizations and emergency transfers, supports CMS quality ratings, and enhances resident and family satisfaction.

Offering PGx positions your facility as a leader in precision medicine while providing a service that is fully reimbursed under Medicare.

Medications Covered by PGx Testing

TruLab Dx's next-generation sequencing panel analyzes more than 40 drug-metabolizing enzymes.

These influence how patients process medications across nearly every therapeutic class, including:

- antidepressants
- antipsychotics
- ADHD therapies
- opioids
- NSAIDs
- statins
- anticoagulants
- chemotherapies
- anticonvulsants
- antibiotics
- antivirals
- antifungals
- thyroid medications
- hormone therapies
- immunosuppressants, and more.

How the Test Works

Implementation is simple.

A cheek swab is collected at the facility and sent to TruLab Dx's CLIA-certified laboratory.

Within a few days, an actionable report is delivered that includes drug-gene interactions, dosing recommendations, and safer alternatives when needed.

Telehealth physicians are available to review and sign orders, and results integrate seamlessly with EHR systems for easy access.

TruLab Dx also provides 24/7 support from laboratory directors, genetic counselors, and regional representatives to ensure a smooth, fully supported process.



Scan for more information!

Help us understand your facility's needs, and a TruLab Dx team member will follow up with tailored solutions.

