

# Innovative Medication Risk Management Tool



Pharmacogenetics (PGx) Saving Hospitals Millions



## How Much Are ADRs Costing Your Hospital

- An estimated 128,000 Americans die yearly and 2.7 million more are hospitalized from taking their medication as prescribed and directed.<sup>1</sup>
- For a 350-bed hospital, managed-care costs associated with ADRs is approximately 2.8 million dollars annually.<sup>2</sup>
- Adverse drug reactions ADRs can prolong hospital stays by 1.7 to 4 days.<sup>3</sup>
- 6.7% of hospitalized patients have a serious ADR.<sup>1</sup>
- About 75% of patients have at least one variant in their metabolic factories and do not metabolize drugs normally.<sup>4</sup>
- Roughly 50 percent of hospital patients are given a drug that could cause serious side effects.<sup>5</sup>
- Due to ADRs, 23.5% of patients discharged from an acute care hospital to an SNF will be readmitted within 30 days.<sup>6</sup>
- Vanderbilt studied 9,500 heart patients and found that 91% had at least one gene version that would prompt doctors to recommend a change in dose or medication.<sup>7</sup>

## Stop ADRs From Taking Their Toll on Your Patients ...and Your Profits!

Due to our genetic differences, a medication that works ideally for one person may be harmful, ineffective, or even deadly for another.<sup>8;9</sup>

When our bodies do not metabolize a drug as intended, it can cause severe adverse effects, and can be dangerous, agonizing, and expensive.

This makes ADRs a costly liability for Hospitals, not to mention its toll on their patients.

Medicare and Medicaid<sup>10</sup> will now cover a non-invasive Pharmacogenomic (PGx) test that reduces the risk of ADRs.

## The Safer, Humane, More Profitable Solution

By utilizing Pharmacogenetic (PGx) testing understanding the intricate connections between DNA and medication treatment options has never been easier.

With a simple cheek swab, physicians can determine if a medication is more likely to help or harm a patient before prescribing a drug.

## Tomorrow's medicine Today.

### Pharmacogenetic Testing:

Increasing the safety and efficacy of prescription drug therapy

#### Leading Medical Institutions that have Adopted PGx Testing



<sup>1</sup> AMA & U.S. News and World Report – Sept 27th, 2016. <sup>2</sup> FDA – U.S. Food and Drug Administration. <sup>3</sup> ODPHP - Office of Disease Prevention and Health Promotion. <sup>4</sup> NIH National Institutes of Health & AMA. <sup>5</sup> St. Jude and Vanderbilt Medical Center. <sup>6</sup> Health Stream.

<sup>7</sup> Scientific American. <sup>8</sup> Mayo Clinic. <sup>9</sup> Slone Epidemiology Center. <sup>10</sup> Medicaid in Approved States.

## The Benefits of Pharmacogenetics (PGx) The Right Drug – The Right Dose - Right From The Start

PGx testing provides insight into how a person's genetic makeup affects their ability to metabolize and respond to medication. Armed with this knowledge, doctors can tailor a personalized medication plan to reduce the risk of costly ADRs, saving hospitals millions.

Without PGx testing, doctors must resort to risky drug trials, exposing their patients to ineffective medications and insidious side effects that can severely affect their health.

The importance of PGx testing cannot be overstated. Considering all these advantages, it's evident that PGx is the future of drug therapy.

- Patients Safety is Significantly Improved
- Eliminates the Guesswork for Physicians
- Covered by Medicare and Medicaid<sup>10</sup>
- Helps Keep Cost Within DRGs Baseline
- Reduces Extended Hospital Stays
- Reduces 30-day Readmissions
- Reduces Legal Exposure
- Clinically Actionable

**St. Jude Children's Hospital Tests all its Patients Stating**  
*"If you knew about this genetic information and didn't act on it,  
You would not be practicing good medicine."*

### Real People – Real Cases – Real Proof – Real Cost



**Marion W.**

Marion was PGx tested in April 2019. Based on the results, her doctor advised her to stop taking the Metoprolol which she had been taking for years and decreased the dosage of her HBP medications. Two years later, her pain management doctor ignored her PGx report and prescribed 300 mg of Tramadol, that caused a life-threatening ADR and she was hospitalized for three days. If her doctor had adhered to the PGx report guidelines, all the expense and suffering could have been avoided.



**Mike F.**

Mike was having difficulty sleeping, so his doctor prescribed Escitalopram. After five weeks of undesirable side effects and no relief, he had a PGx test and learned he was a rapid metabolizer of Escitalopram. If he had been preemptively PGx tested, it would have saved him and his insurance company money and Mike time by avoiding a useless trip to the pharmacy to purchase an ineffective drug. More importantly, he would have received relief weeks sooner.



**Dorothy J.**

Dorothy was experiencing a piercing headache, so she went to the ER. They gave her Reglan 5mg, IV push once, and Toradol 15 mg. A few days later, she was having stroke-like symptoms, so her doctor ordered an MRI. Several months later she had a PGx test and discovered that she was a slow metabolizer of Toradol. If she had a preemptive PGx test, it could have saved her insurance carrier thousands of dollars and spared her the distress and anguish caused by a preventable ADR.

# Not All Pharmacogenetic (PGx) Tests Are Created Equal

It is essential to mention that most labs focus on only a limited number of drugs, genes, and variants, so many physicians have never been exposed to a comprehensive PGx test. This has led to some hesitation among doctors regarding using these tests.

A comprehensive PGx test utilizes Next Generation Sequencing (NGS) assay to provide clinically actionable information for medications across a broad range of medical fields, including anesthesiology, cardiology, endocrinology, gastroenterology, gynecology, immunology, infectious diseases, neurology, oncology, pain management, psychiatry, respiratory, rheumatology, toxicology, urology, and more. The test also yields results for drug-drug, drug-food, drug-alcohol, and drug-lab interactions.

**Example Cover Page of a Comprehensive Personalized PGx Report**

*-For physician use only-*  
**Comprehensive Drug Information for Doe, John**

❌ CONSIDER ALTERNATIVES		DOSE RECOMMENDATION		
Drug Impacted	Recommendation	Drug Impacted	Recommendation	
Atorvastatin (Lipitor®)	<b>CONSIDER ALTERNATIVES</b>	Phenprocoumon (Marcoumar®)	<b>INCREASE DOSE</b>	
Clopidogrel (Plavix®)		Atorvastatin (Lipitor®)	<b>DECREASE DOSE</b> to lowest necessary dose daily	
Lovastatin (Mevacor®)		Lovastatin (Mevacor®)		
Simvastatin (Zocor®)		Simvastatin (Zocor®)	<b>DECREASE DOSE</b>	
Ticagrelor (Brilinta®)		Warfarin (Coumadin®)	Warfarin daily dose 3-4mg	
✅ NORMAL RESPONSE EXPECTED		⚠️ PROCEED WITH CAUTION		
Drug Impacted	Recommendation	Drug Impacted	Recommendation	
Atenolol (Tenormin®)	<b>NORMAL RESPONSE EXPECTED</b>	Amlodipine (Norvasc®)	<b>USE CAUTION</b>	
Benazepril (Lotensin®)		Diltiazem (Cardizem®)		
Perindopril (Aceon®)		Felodipine (Plendil®)		
Bumetanide (Bumex®)		Lercanidipine (Zanidip®)		
Furosemide (Lasix®)		Nisoldipine (Sular®)		
Hydrochlorothiazide (Microzide®)		Nitrendipine (Nitrepin®)		

Only selected drugs are listed here due to limited space. Please refer to Patient Specific Genotype Results table for comprehensive illustration of drugs in each action category.

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\*Typically, test results take about ten days, so preemptive testing is highly recommended so the results are readily available in a medical emergency or before trying a new drug.

**Schedule Discovery Call**

[Calendly.com/mfiedler3](https://calendly.com/mfiedler3)



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