

# Precision Pharmacotherapy for PACE



## Pharmacogenomics Explained

PGx is the study of the relationship between variations in specific genes and variability in drug response. Use of PGx in clinical practice provides precision personalization of an individual's drug regimen. PGx combines the knowledge of how drugs work, or their pharmacology, with the science of the human genome, also known as genomics.



## Pharmacogenomic Testing by CareKinesis

CareKinesis provides PACE organizations with pharmacogenomic (PGx) testing to guide medication prescribing.

In a study<sup>1</sup> conducted by the Tabula Rasa HealthCare (TRHC) Precision Pharmacotherapy Research & Development Institute (PPRDI), a review of 200 PGx clinical pharmacists' consultations found:

- 73.6% of PACE participants were on at least one medication that they do not have the genes to fully metabolize or had multiple copies, requiring dose reductions or alternative medications;
- a savings of over \$233,000 in avoided medical costs or **\$1,983 per PACE participant saved** when PGx testing was implemented with consultation by a clinical pharmacist;
- and up to 86% of pharmacist recommendations were accepted.

## PGx Answers the Most Pertinent Questions

Use of PGx can help answer questions such as:

- Why does this patient need half or twice the standard dose of the drug for it to be effective?
- Why does this drug work for one patient but not another?
- Why does this patient have side effects while others do not, even though the drug and dose are similar?



### Reference

<sup>1</sup>Bain KT, Knowlton C, Matos A. Cost avoidance related to a pharmacist-led pharmacogenomics service for the Program of All-inclusive Care for the Elderly. Pharmacogenomics, 9 Jun 2020.



## Using PGx to Uncover Gene Status

Participants with certain ancestries have variant genes that may not fully activate and/or eliminate various medications. These individuals may not be able to metabolize pro-drugs and/or co-administered medications, and chronic diseases may cause drug-induced phenoconversion, even in individuals with two functional copies of a gene. In addition, co-administered drugs may have a stronger affinity for certain enzymes, made by the genes, making the enzymes unable to activate certain drugs, decreasing the drug's protective effects. The only way to discover an individual's gene status due to ancestry is through PGx testing.



# Personalizing Medication Regimens Using PGx Testing

PGx testing elevates personalized approaches to precision pharmacotherapy, and encourages inclusion in gathering PGx information on individuals of diverse genetic ancestries.

PGx test results allow CareKinesis pharmacists and PACE clinicians to avoid trial-and-error prescribing. Pharmacist recommendations are guided by the latest PGx evidence, not just deduction and assumption.

CareKinesis pharmacists can identify and prioritize PGx testing for the highest risk PACE participants using MedWise® clinical decision support

tools. Once the highest risk participants are tested, other segments of the PACE population can be tested, with the goal of having PGx genotypes/phenotypes for all willing participants in each PACE organization. CareKinesis can also implement processes for testing each new participant upon admission to the PACE program.

## Documenting PGx Results

Administering a PGx test just once provides years of benefits for participants. Using the results, a CareKinesis clinical pharmacist reviews and provides personalized PGx consultation services to the PACE prescriber. The participant's complete drug regimen is reviewed to determine drug-gene and multi-drug interactions as well as phenotype conversions, which may warrant a prescriber's attention, such as

monitoring therapy, altering dosage, or changing therapy.

To request PGx tests to improve outcomes for your PACE participants, contact CareKinesis at 888-9-PharmD (888-974-2763), option 1 or [info@carekinesis.com](mailto:info@carekinesis.com). CareKinesis clients may request tests by contacting their clinical pharmacist through through EireneRx Messaging or calling 888-9-PharmD (888-974-2763), option 1.

