

# **PERSONALIZED MEDICINE** The Future of Medicine

Personalized Medicine is all about customizing each patient's care and treatment based on his or her unique genetic characteristics and health history.

It is through Personalized Medicine, also known as Precision Medicine, that physicians are now able to better predict, prevent and treat various diseases and conditions.

At the NorthShore Center for Personalized Medicine, we are transforming the way we practice medicine and care for our patients.

## WHAT DOES IT MEAN?



## **Complete set of** genetic code found in a cell.

## **FUN FACT**

The human genome is remarkably similar for everyone. In fact, we are all more than 99% identical.

## **Organized structures**

found in the nucleus of a cell that contain DNA.

## **FUN FACT**

Humans have 46 chromosomes; 23 from your father, 23 from your mother. There may be hundreds or thousands of genes on one single chromosome.

**DNA** deoxyribonucleic acid GENE

Molecule that is responsible for carrying genetic/biological instructions. It consists of two strands that wind around each other to form a double helix.

## **FUN FACT**

There are four DNA bases that make up your unique genetic code adenine (A), cytosine (C), guanine (G) and thymine (T).

Physical unit that determines inherited traits found on chromosomes.

## **FUN FACT**

Only 1% of the DNA sequence is comprised of genes. Humans have an estimated 20,000 genes.

**NOT JUST GENES** 

Diet

Your family health history may include specific diseases and conditions, but there are many other factors that can influence and impact vour risk of future medical concerns. These include:

> Environmental Factors

Weight

Body Mass/

## Other Health Problems

Age

While some things are out of your control, leading a healthy lifestyle complete with exercise and a nutritious diet may be your best bet for staying well.

## THE RIGHT MEDICINE: **PHARMACOGENOMICS**

## What is **Pharmacogenomics?**

The study of how our genetic makeup influences our response to different medications.

Its focus is on providing safe & effective medications.

### **Getting it Right**

Not everyone processes or metabolizes medications the same way; what may work for one may not work for another.

Depending on one's genetic makeup as well as other factors such as age, weight & diet, a drug can have different effects:



**Right Drug** 

**Right Dose** 

**First Time** 



#### **Good / Average Drug** Response Reduce, maintain or

increase dosage

#### Poor Drug Response

Discontinue use due to partial response, no response or adverse reaction

## Applying **Pharmacogenomics**

**Pharmacogenomics** provides drug-gene information that can customize medical treatment, which minimizes side effects and adverse reactions to drugs.

Applying pharmacogenomics can be especially useful in treating the following conditions:







**Depression** 



**Pain Management** 



Cancer

SPECIFIC BIOMARKERS, **TARGETED THERAPIES** 



Learn more about NorthShore's Center for Personalized Medicine by visiting northshore.org/personalized-medicine or by calling 847.570.GENE.

