100,000 people die from medical errors each year in the US.

7,000 of which are from Adverse Drug Reactions (ADRs).

What if we told you that some ADRs are being prevented & more could be prevented in the future with Pharmacogenomics.

Pharmacogenomics is the study of how genes affect a person's response to drugs.

We're not all created equal in how our bodies accept medication. For example:

- Our CYP2D6 gene defines how we metabolize codeine. We can be 1 of 4 types...
  - Ultra-Rapid Metabolizer
  - Extensive Metabolizer
  - Intermediate Metabolizer
  - Poor Metabolizer

1 in 4 breast cancer cases are caused by an overexpression or amplification of the HER2 gene.

HER2-positive patients can be treated with Trastuzumab (Herceptin®), which targets HER2+ biomarker.

The American Society of Clinical Oncology & National Comprehensive Cancer Network recommend that ALL breast tumors be tested for the HER2-positive biomarker.

Trastuzumab can reduce HER2+ breast cancer recurrence by as much as 40%.

What can you do???

- Be aware of the impact of pharmacogenomics on how patients respond to medications.
- Teach others about pharmacogenomics.
- Look for pharmacogenomic markers on medicine labels.

Explore these resources:
- FDA: http://goo.gl/1Gpb
- PharmGKB: http://pharmgkb.org
- NIH: http://goo.gl/30xaw

By using pharmacogenomics, we can tailor the dosing of medications, like codeine to avoid under or over-dosing patients depending on their genetic makeup.