

African American Cardiovascular pharmacogenomics CONsorTium

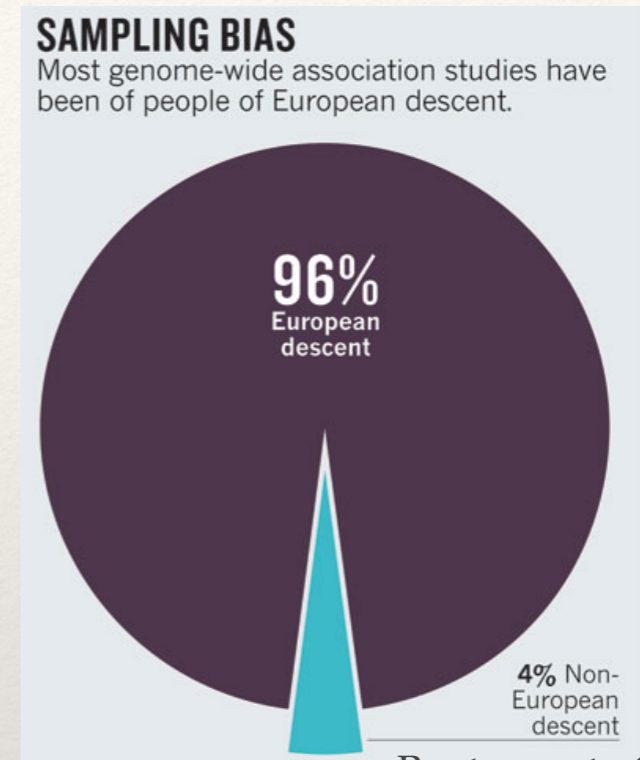


ACCOuNT: discovery & translation

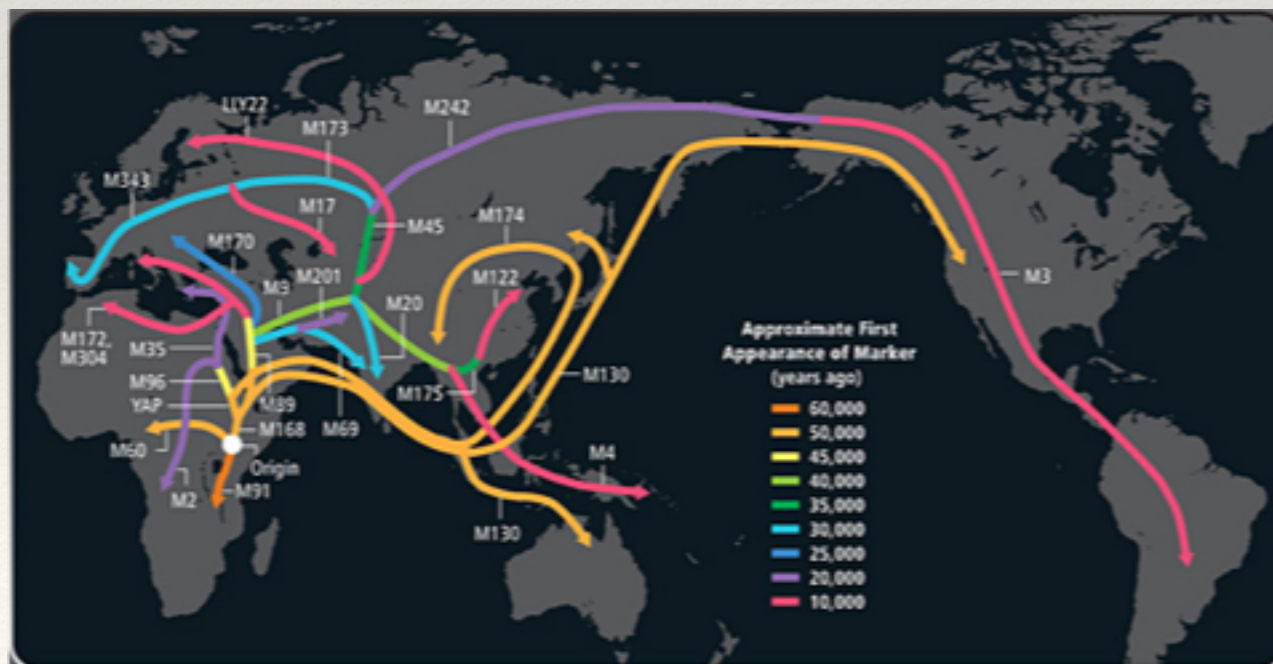
Minoli Perera PharmD, PhD

Minorities in Pharmacogenomics

- ❖ More studies in European descent populations
- ❖ Most of the clinical studies in AA involve SNPs found in other populations
- ❖ Correct for race
- ❖ What are we missing
 - ❖ Variation unique to AA
 - ❖ Effect of genetic architecture on association.



Bustamante C, Nature 2011

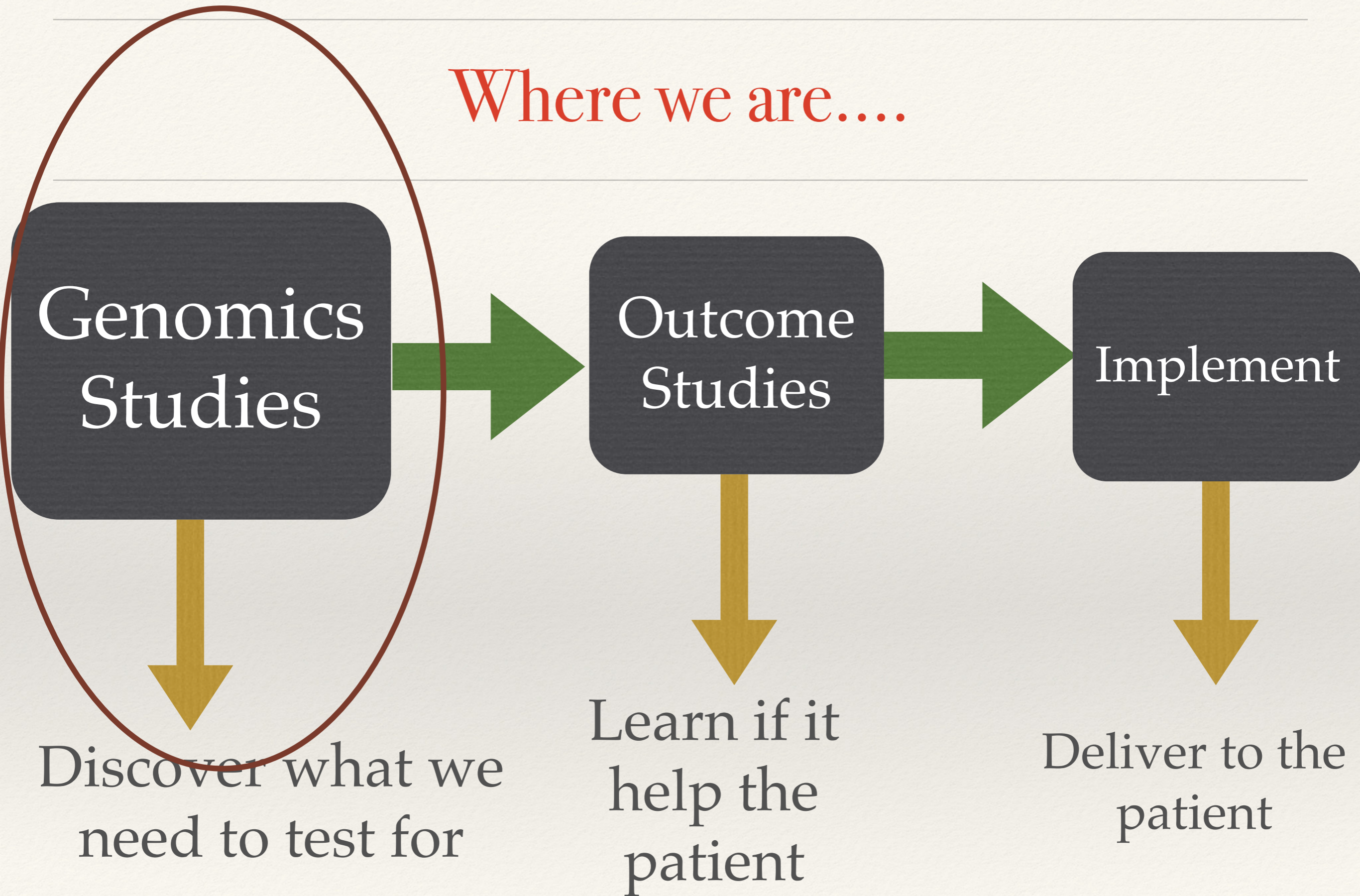


- ❖ African are the oldest population – more genetic variation
- ❖ African Americans are admixed (a mix between Europeans and Africans)
- ❖ Disparities in disease (breast cancer)
- ❖ Difference in drug metabolism (CYP3A5)

ACCOuNT: Goals

- ❖ U54 collaborative grant (NIMHD)
 - ❖ Collaborative center across two major US cities: DC and Chicago
- ❖ Accelerate discovery and translation in African Americans.
- ❖ Build infrastructure for continued work.
- ❖ Provide publicly available data for other investigators.
- ❖ Engage the African American community (Consortium Core)

Where we are....



Genomics
Studies

Outcome
Studies

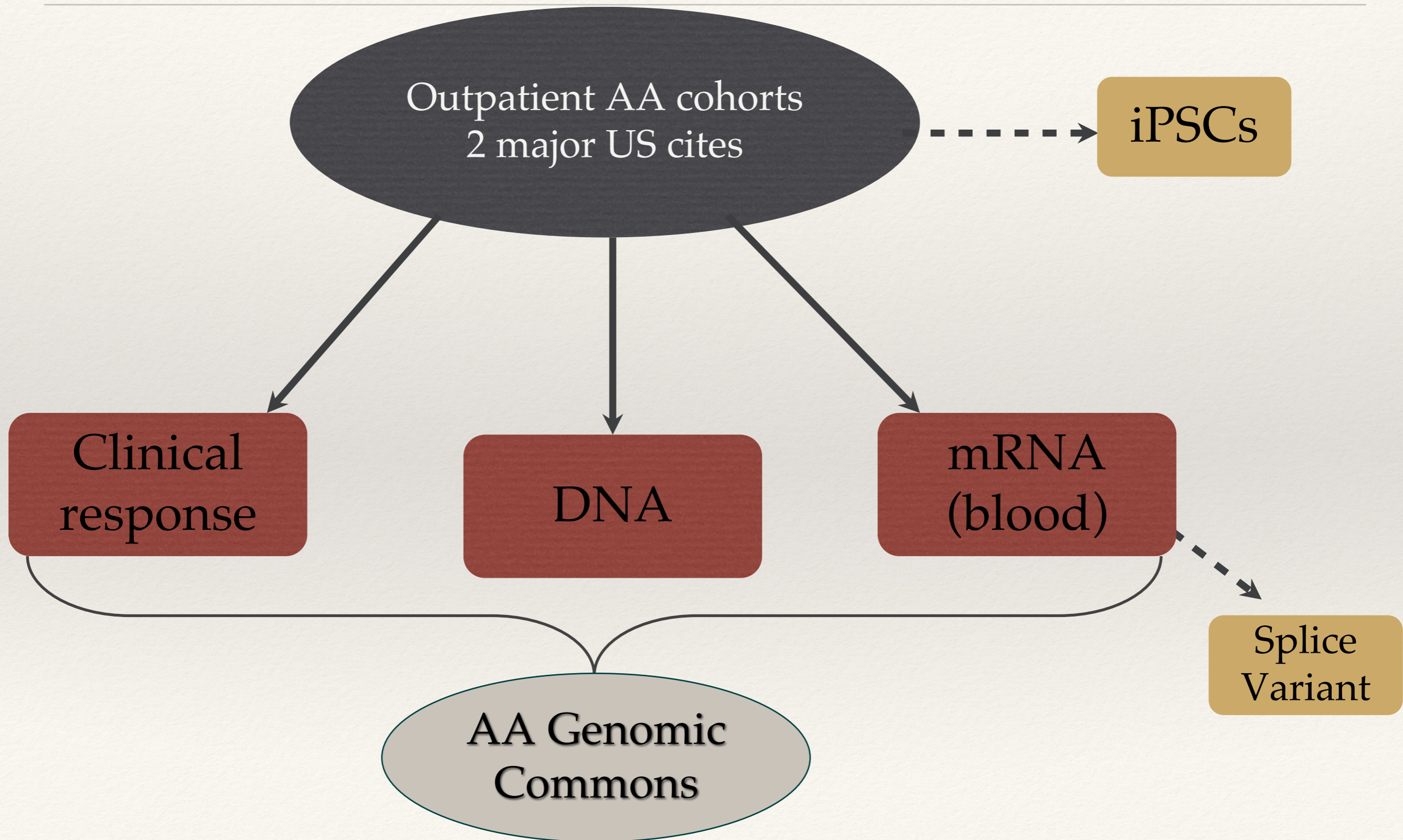
Implement

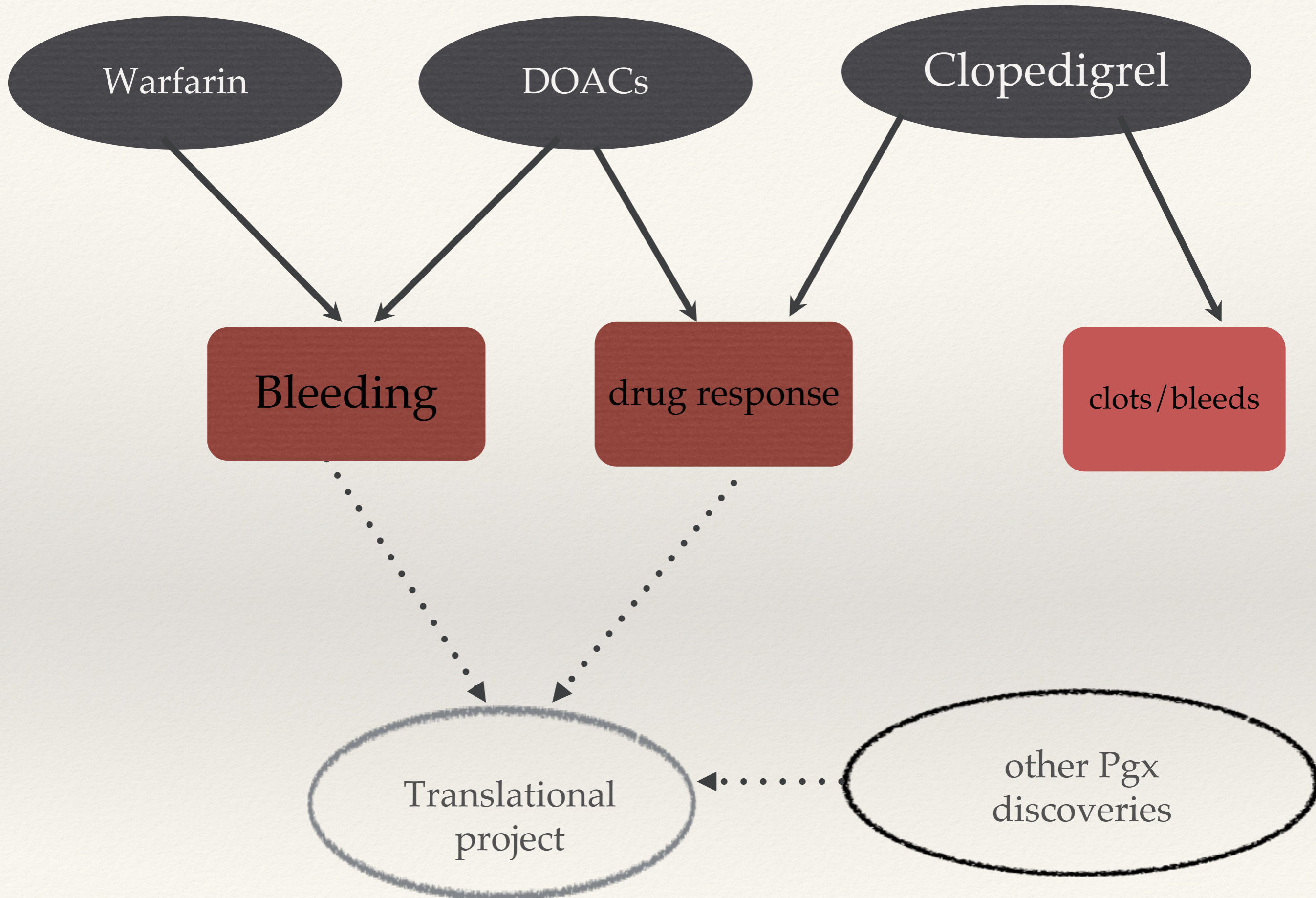
Discover what we
need to test for

Learn if it
help the
patient

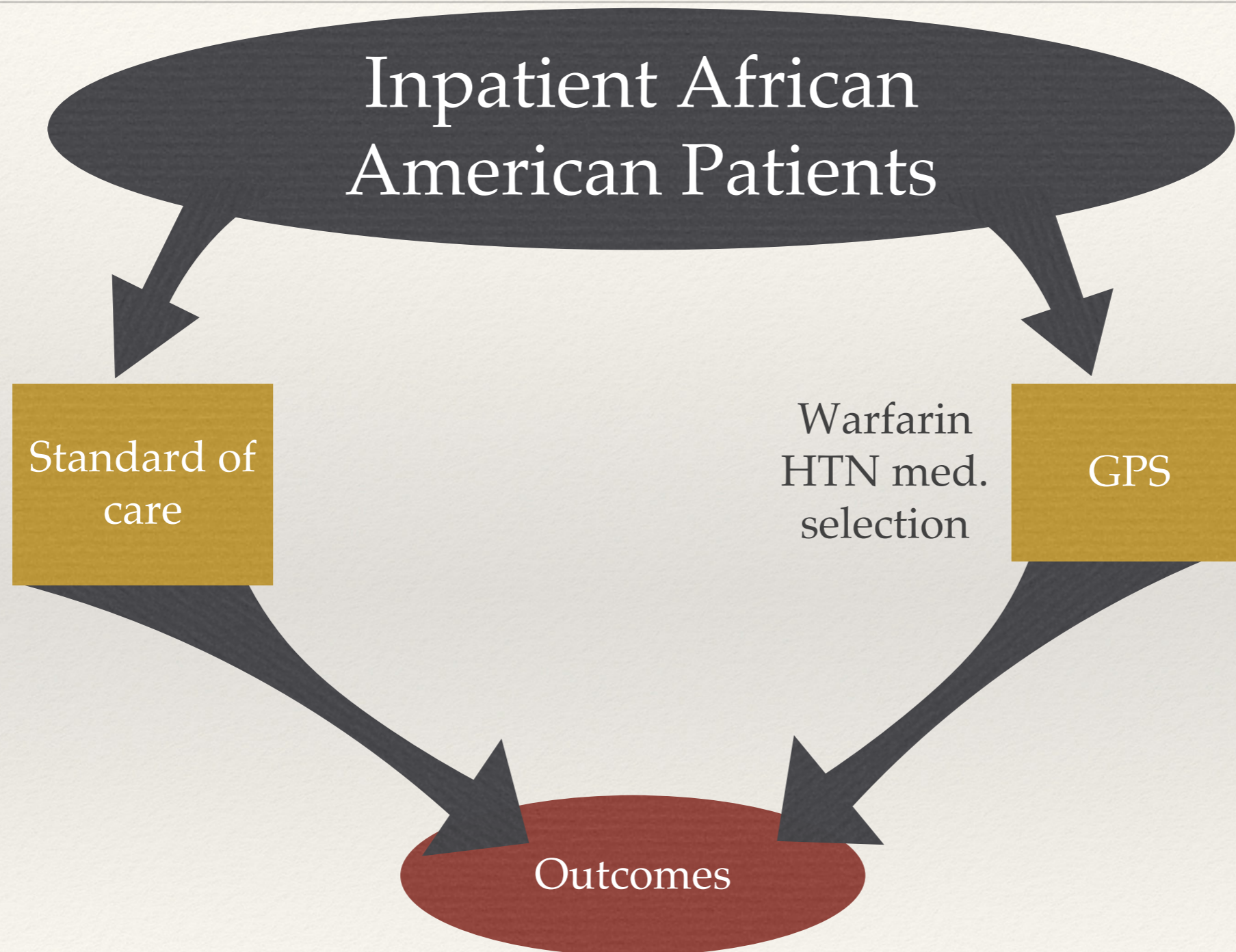
Deliver to the
patient

Discovery Project



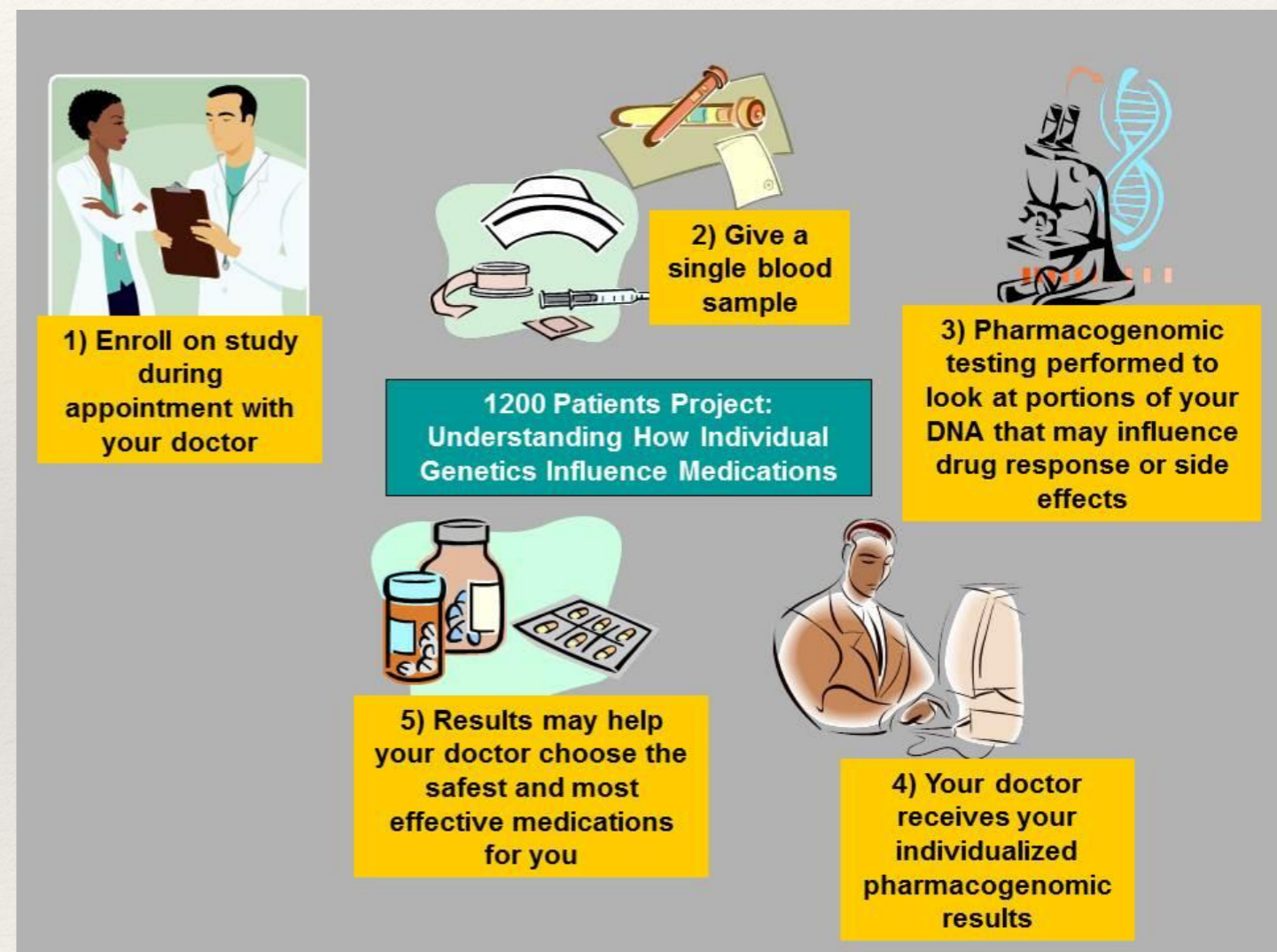


Translational Project: Chicago

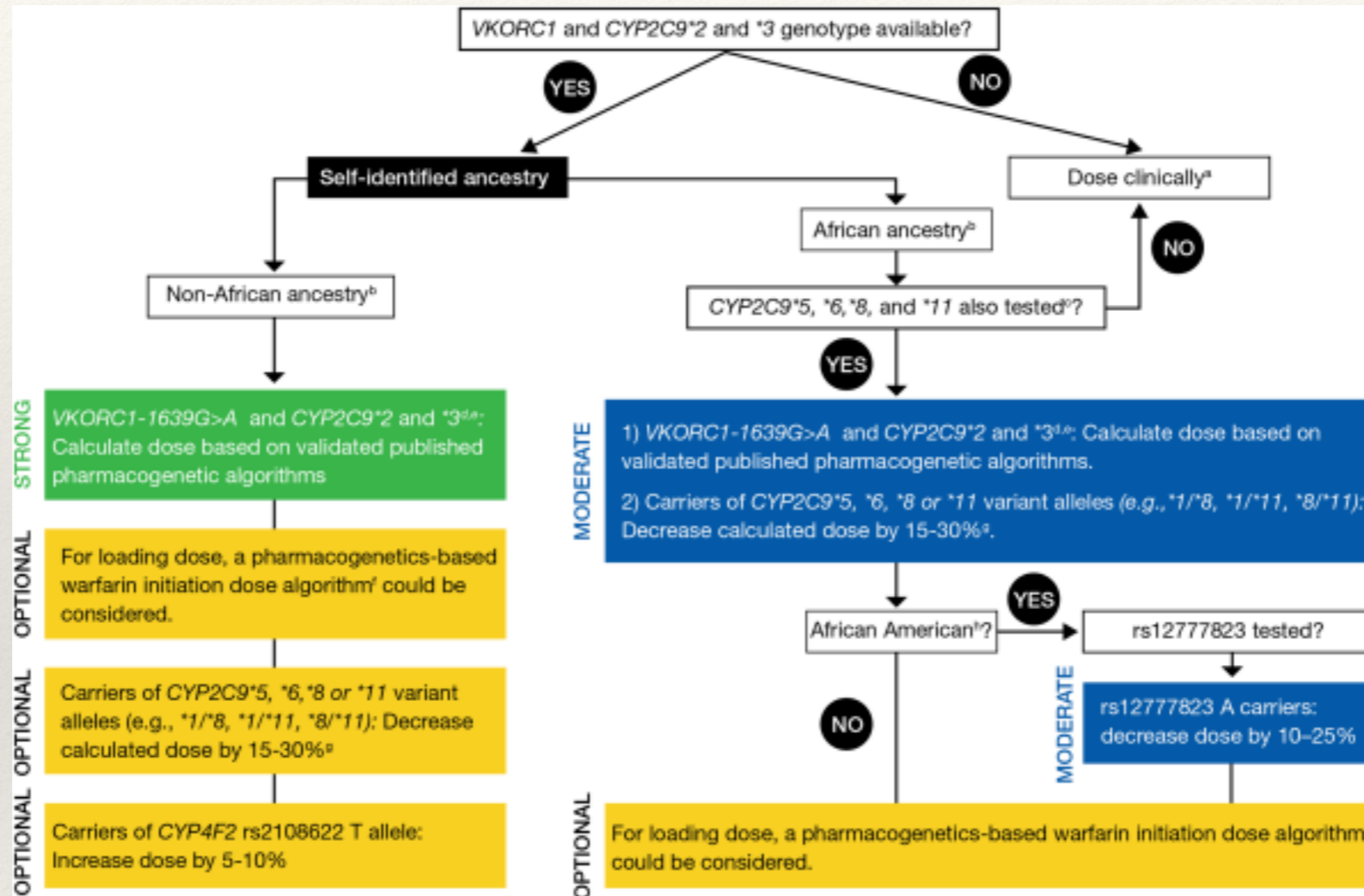


1200 Patients Project

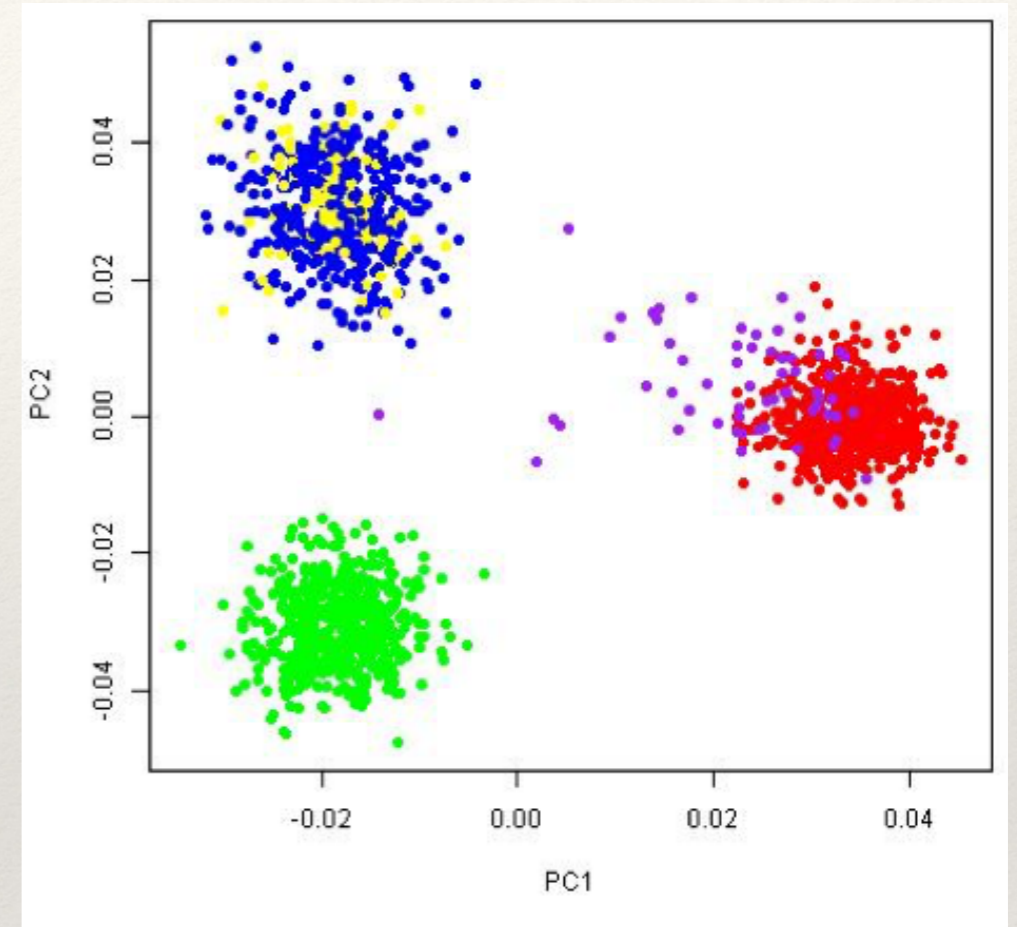
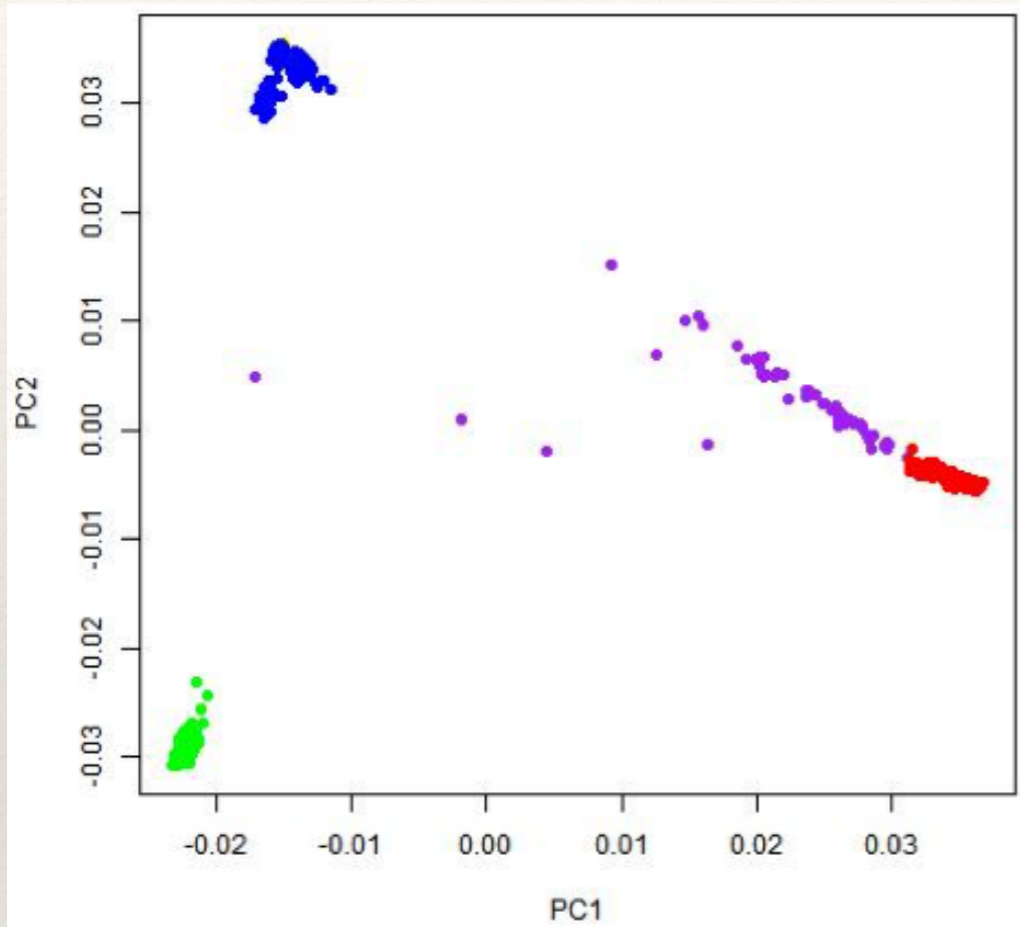
- ❖ PI: Dr. Peter O'Donnell
- ❖ Pharmacogenomics implementation study
- ❖ GPS: Online portal by which Dr. receive PgX results



CPIC guidelines - 2017




Determination of Ancestry.



	Sensitivity	Specificity	PPV	NPV
Pgx panel vs. Genome wide panel	86.3%	90%	97.8%	56.3%

GPS: Genomic Prescribing System


Genomic Prescribing System[®]

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Pharmacogenomic (PGx) Alerts
FAQ Surveys

[← PATIENTS](#)
 Name: [Redacted] MRN: [Redacted] Date of Birth: [Redacted] Sex: [Redacted]
 Page Accessed: 2017-01-17 2:25:14 PM

All Drugs
 All Drugs (Compact)
 Yellow/Red
 Current Meds
 Search Term

PGx Signal	Drug	PGx Alternatives	
	Aspirin	●	⌵
	Montelukast	●	⌵
	Hydralazine	● / ●	⌵
	Metoprolol	● / ●	⌵
	Rabeprazole	● / ●	⌵
	Warfarin	None	⌵

Current medications with no PGx recommendation:

Grazoprevir Levocetirizine	Liraglutide Spironolactone	Valsartan
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DISCLAIMER: This information displays medications according to their pharmacogenomic likelihood of various clinical outcomes for this specific patient. Other clinical factors, including but not limited to drug-drug interactions, organ dysfunctions, and comorbidities, should be considered when determining overall appropriateness of these medications for this patient.

Patient Engagement and advocacy

- ❖ Consortium Core: Lead - Doriane Miller (UChicago)
- ❖ Community-based research through Pilot Grant applications
- ❖ Interaction with the PCORI Patient and Clinician Advisory Committee.
- ❖ Community and Stakeholder Advisory Board (CSAB)
 - ❖ Representation from both cities: Chicago Public Health, Rodham Institute, Georgetown Howard Universities Center for Clinical and Translational Science.

ACCOuNT Website



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ACCOuNT

The African American Cardiovascular Pharmacogenomics Consortium

PRECISION MEDICINE FOR ALL

African American Data Commons

- ❖ In collaboration with Bob Grossman (UChicago) and Li Gong (Stanford)
- ❖ Build relevant data models and elements.
- ❖ harmonizing the data collection across sites.

Data Matrices

Requires username and password.

- Data Submission Counts Matrix
- Experiment Summary Matrix
- Experiment Results Matrix



Data Model

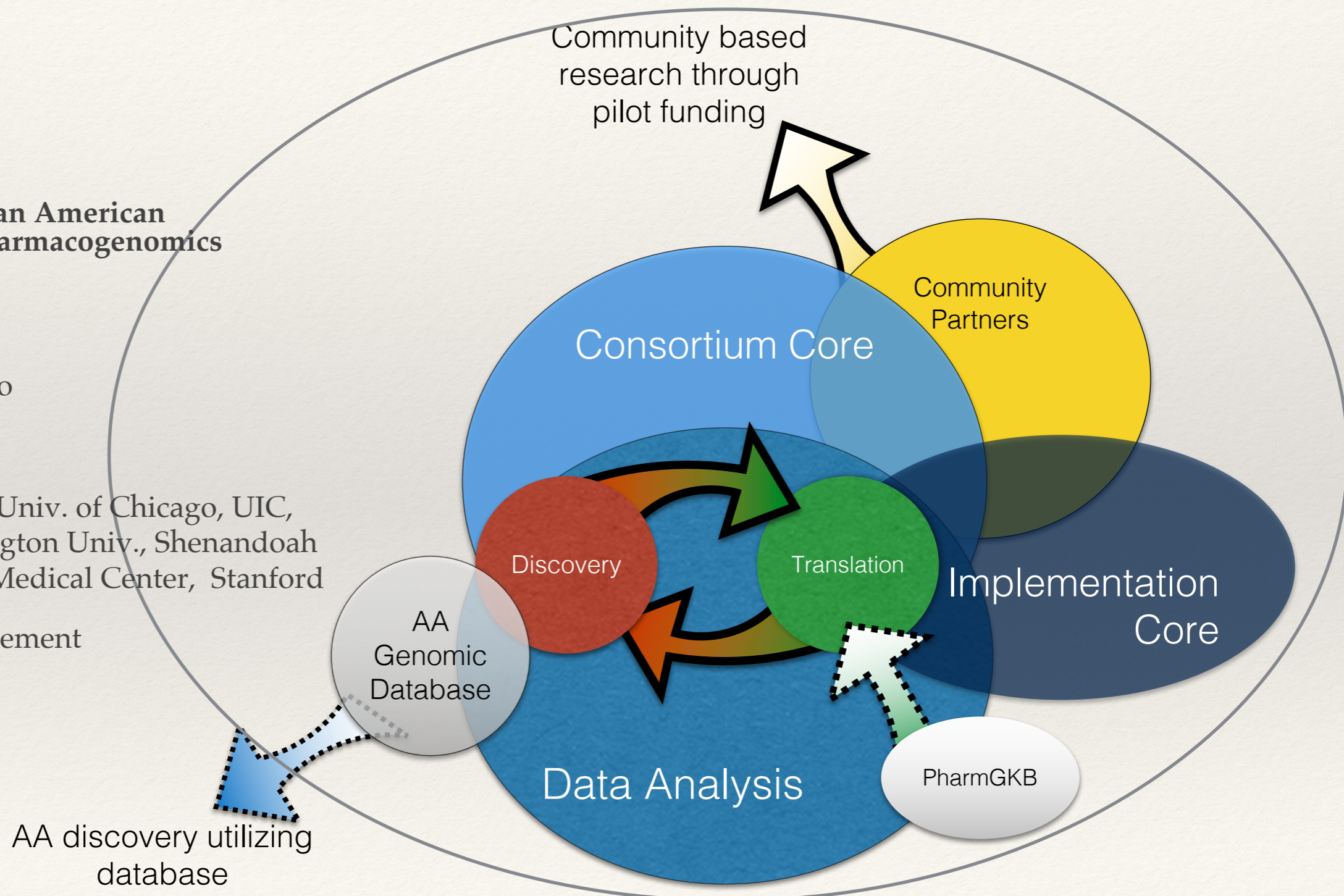
To facilitate a common set of standards and the use of tools for analysis, a data model has been developed for this project. We will work to make the data model as close to the Genomic Data Commons (gdc.cancer.gov) data model and as compliant to the GA4GH standards as practical.

<https://github.com/occ-data/bpadiictionary>

- Overview of draft BPA data model v0.5
- BPA Model in Github
- Clinical Data Harmonization
- Suggested template for brief experimental descriptions

ACCOuNT: U54 funded project

- ❖ **ACCOuNT: African American Cardiovascular Pharmacogenomics CONsorTium**
- ❖ 2 major US Cities
 - ❖ DC and Chicago
- ❖ 7 institutions
 - ❖ Northwestern, Univ. of Chicago, UIC, George Washington Univ., Shenandoah Univ., VA DC Medical Center, Stanford
- ❖ Community involvement

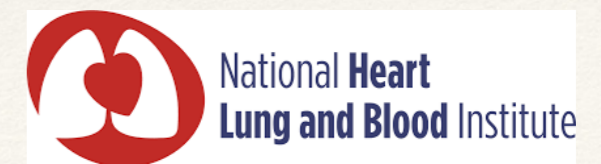
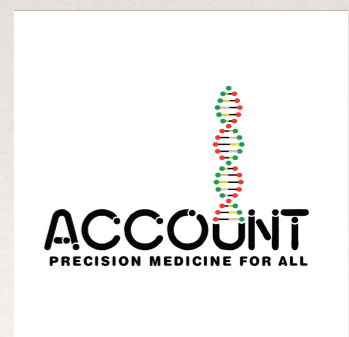
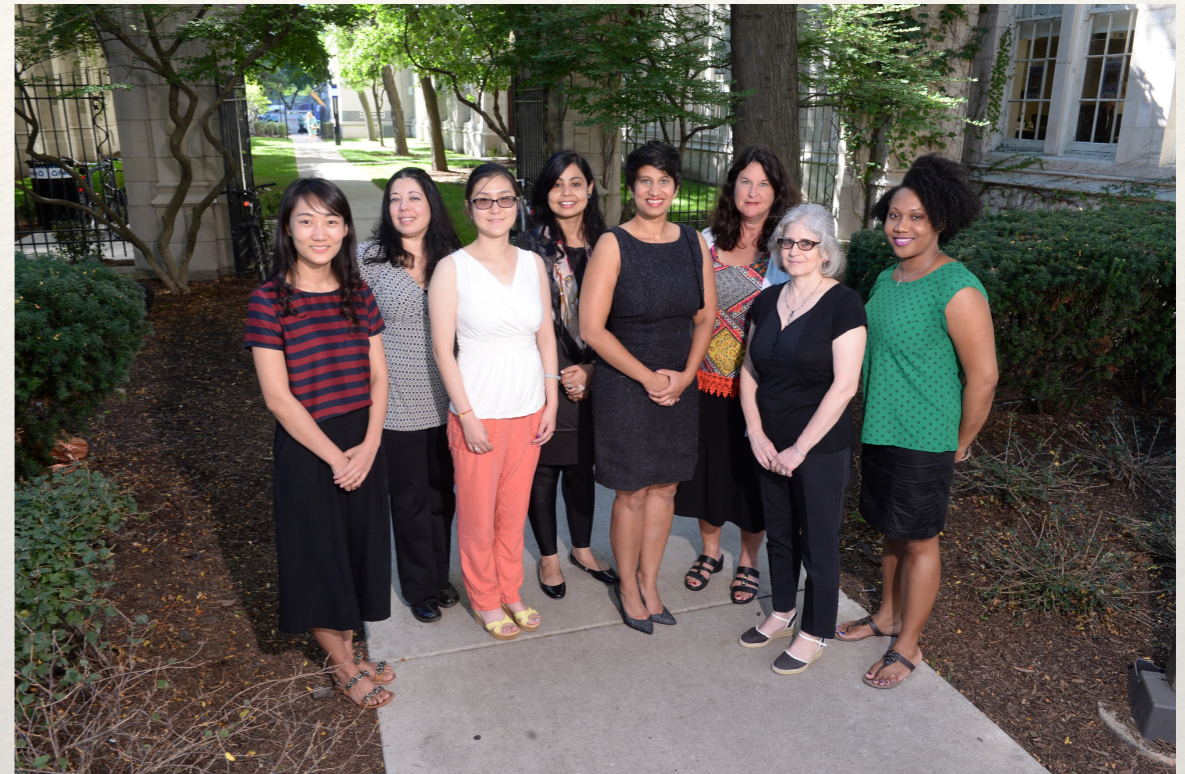


Two additional effort with NU

- ❖ eMERGE PGx
 - ❖ Part of the larger eMERGE initiative.
 - ❖ CYP2C19 / Clopidogrel
 - ❖ SLCO1B1 / Simvastatin
 - ❖ VKORCI = CYP2C9 / Warfarin
 - ❖ Report supplied by Baylor – eMERGE-wide
- ❖ Clinical CYP2C19 testing directed at the Cath Lab.

To those that make it possible

- ❖ Perera Lab
- ❖ University of Chicago
 - ❖ David Meltzer
 - ❖ Peter O'Donnell
 - ❖ Doriane Miller
 - ❖ Robert Grossman
- ❖ University of Illinois
 - ❖ Edith Nutescu
- ❖ George Washington University
 - ❖ Travis O'Brien
 - ❖ Norm Lee
- ❖ Shenandoah University
 - ❖ Art Harrison
- ❖ VA Hospital DC
 - ❖ Matt Tuck
- ❖ Stanford
 - ❖ Li Gong
 - ❖ Ryan Whaley
 - ❖ Teri Klein
- ❖ Northwestern University
 - ❖ Marc Rosenman
 - ❖ Kevin O'Leary
- ❖ Patients



QUESTIONS?

