University of Arizona Pharmacogenomics and Precision Medicine Symposium Breakout session

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Pre-emptive PGx testing in clinical care has diverse paths

- Provider-led
  - Similar to current laboratory or other diagnostic testing
  - Practitioners order, interpret, are responsible for test results
  - Approach used in PHASER
  - Paternalistic approach/provider is bottleneck
- Patient-led
  - Similar to how a patient can request a flu shot, hepatitis/HIV screening
  - Patient-centric
  - Risk of not having a provider participate in process (i.e. patient acting without guidance)
- Ancillary staff-led
  - Nursing or dispensing pharmacists
- Transfer/management of existing data
  - E.g. Helix/23andMe
- Opt-out approach
  - Use discarded blood unless patient opts-out
- Employer/insurer-led approach
  - Cost-effectiveness
  - Population health

Provider-led approach generally follows 1 of 3 paths

Preemptive testing

- Target: Patients who are likely to require > 1 pharmacogenetic medication in next 1-3 years
- Goal of testing: To prevent adverse drug effects and minimize trial/error
- Testing performed prior to prescribing
- Results stored in EHR with clinical decision support
- Typically panel testing

- Benefits: multiple gene/drug's covered, results available at the time of prescription, no delay in treatment, cost-efficient
- Limitations: EHR integration and clinical decision support require specialized programming/maintenance

Provider-led approach generally follows 2 of 3 paths

Point-of-care (real-time or reactive) testing

- Target: Patients being prescribed PGx medication
- Goal of testing: prevent ADR, minimize trial/error
- Test at time of prescription
- May be single-gene/drug or panel

- Benefits: Targeted, less 'unnecessary' testing
- Limitations: treatment delays, higher cost if testing for multiple different genes over time vs. a single panel

Provider-led approach generally follows 3 of 3 paths

Diagnostic (retrospective) Testing

- Target patients: Those with prior adverse drug effects, polypharmacy
- Goal of testing: To diagnose a potential drug-gene interaction and provide therapeutic alternatives
- May be single gene/drug or panel

- Benefits: May help overcome suspected allergies/intolerances
- Limitations: A missed opportunity if ADR is fatal/severe

Discussion questions

- How best to engage with providers to optimize provider-led approach?
- What is the value proposition for an individual provider for pre-emptive pharmacogenomic testing?
  - What will make it worth their while to order a panel test?
  - Hybrid: reactive-preemptive approach? What are the appropriate triggers to which providers will “react”?
- How to responsibly conduct a patient-led approach?
- Is opt-out a viable approach?