

## PERSONALIZED MEDICINE CORNER

### Implementing Pharmacogenomics in the Clinic: Who, What, and How?

Developing a pragmatic model to incorporate pharmacogenomics services into routine clinical care is a common need among healthcare professionals interested in pharmacogenomics. At the recent UF Precision Medicine Conference in Orlando, Florida, Mark Dunnenberger, PharmD, Senior Clinical Specialist in Pharmacogenomics at the NorthShore Center for Personalized Medicine, discussed the logistics of the successful outpatient pharmacogenomics clinic he has developed at his institution.

Dunnenberger identified four key decision points to consider before starting a new pharmacogenomics service: personnel, patients, testing, and reimbursement.

First, a clinical pharmacogenomics service requires sufficient personnel to bill for clinical services, collect medication and family history data, interpret pharmacogenomic test results, develop a genotype-informed treatment plan, and counsel patients on the risks, benefits, and limitations of pharmacogenomic testing.

Second, Dunnenberger noted that appropriate patient selection will be key to long-term success. The targeted patient population should have an identified need for and potential benefit from clinical pharmacogenomics services (e.g., polypharmacy, poor treatment response). Referral criteria and methods for identifying and referring patients should be determined up front.

Third, the approach to how the pharmacogenomic testing will be conducted should be determined, with three key factors identified by Dunnenberger as influencing the appropriate decision: 1) whether testing will be reactive or preemptive; 2) if testing will be conducted as a single-gene test or multi-gene panel; and 3) whether testing will be performed in-house or by a third-party laboratory. Answers to these questions will vary and depend greatly on the patient population being served and clinic environment.

The fourth key decision point identified by Dunnenberger, developing a sustainable reimbursement model, is also likely to present the most challenges in the current billing environment. Steps that clinicians can consider in this process include identifying a billable provider, determining whether billing will be time- or complexity-based, and deciding whether the cost of testing will be billed directly to patients or to their major medical provider. In some cases, clinics have opted to outsource testing and billing to commercial laboratories that may have resources to coordinate prior authorization requests and/or income-based sliding scale cost models for patients to ease the financial and administrative burden of test reimbursement.

Leaders in pharmacogenomics, such as Dr. Dunnenberger, are showing that implementation of pharmacogenomic services in the outpatient setting is feasible. Dunnenberger has also described his experiences in detail in a recently published article.<sup>1</sup>

For questions on ordering and interpreting a pharmacogenomic test, contact the UF Health Personalized Medicine Program ([PMP-HELP@ctsi.ufl.edu](mailto:PMP-HELP@ctsi.ufl.edu)).

#### References:

1. Dunnenberger HM, Biszewski M, Bell GC, et al. Implementation of a multidisciplinary pharmacogenomics clinic in a community health system. *Am J Health Syst Pharm*. 2016 Dec 1;73(23):1956-1966.

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