



## COMPLETED GRANT SYNOPSIS

Pharmacy Implementation of Pharmacogenetic Testing and Interpretation for Mental Health  
Stephanie Davis, PharmD, BCACP; Elise Durgin, PharmD, BCACP; Emily Hulke, PharmD  
Goodrich Pharmacy | Anoka, MN

Objectives	
<ol style="list-style-type: none"> <li>To implement a pharmacogenetic testing and interpretation service in an independent community pharmacy in partnership with a community psychological services clinic or clinics.</li> <li>To identify drug therapy problems based on patients' pharmacogenetic profile to improve outcomes and patient experience with their medication therapy for depression and anxiety.</li> <li>To broaden awareness of the pharmacist's role as a resource for patients with mental health conditions, and in managing medications used for mental health.</li> </ol>	
Methods	
Design	<p><i>Project setting:</i> The project was based out of our community pharmacy in Anoka. Visits with pharmacists were similar to already-established comprehensive medication management services.</p> <p><i>Patient characteristics:</i> Patients were referred by mental health or primary care providers for pharmacogenetic testing and interpretation. All patients were taking at least one medication for a mental health condition.</p> <p><i>Length and style of participation (number and frequency of visits or contacts):</i> All patients had two visits; one for the initial consultation and one for follow-up. The initial in-person consultation included a comprehensive medication review of all of their current medications and chronic conditions, including the patient's current mental health medications and previous medication trials. Initial visits ranged in length from 30-60 minutes depending on the patient's medical conditions and medication list. This was similar to the comprehensive medication management appointments that were already provided at the pharmacy. Patients were educated about pharmacogenetic testing, its role in medication management, and the types of information generated by testing. Patients were also informed that that pharmacogenetic testing is another tool to use to optimize their medication therapy, but that it is not guaranteed to be revealing about the cause of medication trial failures. If they were still interested, a buccal swab was collected and sent to OneOme for processing. All patients had one follow-up consultation either in person or via phone to interpret the results of their pharmacogenetic testing and recommendations regarding drug therapy based on the results. Follow-up visits were generally 45-60 minutes in length due to the amount of information included on the patient's pharmacogenetic testing report and patient questions. Recommendations for changes to therapy were sent to the patient's referring provider.</p> <p><i>Data collection (type and process):</i> Each patient was entered into the electronic health record and notes from each encounter were recorded.</p>

Study endpoints	<ul style="list-style-type: none"> <li>Number of drug therapy problems discovered during comprehensive medication management visits, and the percentage of those problems that resulted from a patient's pharmacogenetic profile.</li> </ul>
<b>Results</b>	
<ul style="list-style-type: none"> <li>A total of 39 patients were referred by their providers for pharmacogenetics testing between June 2019 and March 2020. Of these patients, 25 of them did not have insurance coverage for testing and were tested using grant funds.</li> <li>Of the 25 patients tested using grant funds, the mean patient age was 42 years and 72% of patients were female.</li> <li>A total of 39 drug therapy problems were identified in these 25 patients with 20 of them identified from pharmacogenetic testing. Of the 39 total drug therapy problems, 21 of these were documented as resolved through visits with the pharmacist.</li> <li>A majority of these drug therapy problems were from patient's experiencing side effects from medications that were resolved by switching the patient to a different medication that they would have been expected to respond to better based on their pharmacogenetic results or patient's being switched to a different medication due to perceived lack of efficacy with their current medication. Other types of drug therapy problems identified during the visits included unnecessary therapy with over the counter vitamins/supplements, requiring additional therapy for a condition, and requiring additional vaccinations based on CDC guidelines.</li> <li>While no formal satisfaction survey was conducted, a majority of the patients tested expressed their satisfaction with the testing and liked having information to use to guide future medication decisions.</li> </ul>	
<b>Conclusion</b>	
<p>This grant allowed us to conducted pharmacogenetics testing and interpretation of results for patients with mental health conditions who wouldn't otherwise have insurance coverage for testing. We found that pharmacists are able to identify and resolve drug therapy problems based on pharmacogenetics results from the community pharmacy setting. Since the conclusion of the grant, we continue to have patients referred by providers in our clinic for this service and find that they rely on us heavily to interpret and provide recommendations based on these results. While the grant is no longer available to cover the cost of the testing, this is a covered benefit by certain insurance plans including Medicare and Medicaid. Patient's without coverage can choose to pay out of pocket for testing.</p> <p>Goodrich Pharmacy is in a unique situation given that a majority of the pharmacies are located within clinics which makes communication with providers easier. Future studies could aim to determine the feasibility of providing pharmacogenetic testing from stand-alone community pharmacy locations. It would also be beneficial to send formal surveys to patients who have completed pharmacogenetic testing and their referring providers to determine satisfaction with the service.</p>	