Background

- Currently, the Food and Drug Administration (FDA) has pharmacogenomic information listed in the package labeling of more than 250 medications.1
- Less than 40% of patients achieve remission from depression with initial drug treatment.2
- Eighty-five percent of patients who are diagnosed with major depressive disorder also have 1 or more chronic health conditions and nearly 30% have 4 or more other health conditions.3

Objectives

- Evaluate the impact of a pharmacogenomics service provided by a pharmacist on medication optimization.
- Secondary objectives include both patient and provider satisfaction with the service.

Methods

- A pilot program proposal was developed for pharmacogenomics services starting in August 2019.
- Implementation period: August 2019 – Present
- An outside provider of pharmacogenomics services was contracted with to provide population analytics, team member training, testing and reporting.
- Reporting contains gene-drug associations for various disease states including, but not limited to, cardiovascular disease, diabetes mellitus, mental health, pain, and gastrointestinal disorders.
- Three online surveys were developed: patient interest, initial assessment, and patient/provider satisfaction survey. Five clinical pharmacists were scheduled to complete a 16-hour continuing education course and platform training provided by pharmacogenomics company.

Table 1: Barriers to Implementation

<table>
<thead>
<tr>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time for team member training</td>
<td>Considerations for protection of patient data</td>
</tr>
<tr>
<td>Corporate-level decision making delays</td>
<td>Time for external contractor to develop site-specific materials</td>
</tr>
<tr>
<td>Debate over proper storage of results</td>
<td>Employer approval of pilot and related expense</td>
</tr>
</tbody>
</table>

Results

- Initial approval was obtained from the health center for a pilot program and associated workflow (Figure 1) for pharmacogenomic testing of 40 patients in October 2019.
- All health center providers accepted the proposed pilot. Four internal medical providers agreed to complete provider-level training provided. One pharmacist has completed the training, two are in the process of completing the training and two have not started the training yet.
- Corporate leadership approved the pilot program for patients taking medications for the treatment of mental health related disorders only in March 2020. This includes 36% of total medications available for pharmacogenomic testing. (Figure 2) Approval for this modified pilot program is still pending by the health center.

Figure 1: Workflow

Identification of potential pilot patients
- 18 years or older, provider referral or patient self-selects
- Completion of interest survey, electronically

Selection of pilot patients (n=40)
- 75% of patients will identify the health center as their medical home
- Diagnoses, medications, and adverse events or medication non-response

Initial patient screening
- Initial assessment survey will be completed by each patient
- Measure patient confidence and knowledge about medications as well as their goals for the pharmacogenomic testing program

First patient appointment with clinical pharmacist
- Patient receives initial consult with pharmacist and signs consent form
- Collection of buccal swab and mailing to laboratory

Results obtained from lab
- Results provided within 5-7 days
- Reviewed by clinical pharmacist

Clinical pharmacist consult with provider
- Recommendations will be made for medication optimization
- Assess potential for referral to genetic counselor

Second patient appointment with clinical pharmacist
- Patient will be provided with medication action plan and information card
- Results will be scanned into patient electronic medical record

Follow-up
- Patient follow-up call will be scheduled with clinical pharmacist within 60 days
- Provider and patient will complete patient/provider satisfaction survey

Discussion

- The implementation phase is ongoing and has surpassed projected timeline. Barriers experienced by this health center are listed in Table 1.
- It could take more than 6 months to implement a pharmacogenomics service in other corporately owned health centers.
- Pharmacists possess the necessary skills required to implement a pharmacogenomics service including patient education and the ability to provide evidence-based medication optimization requests.

References