Implementation of a Pharmacogenomics Program at an Employer-Based Health Center

Will A, PharmD[1,2]; Fabel P, PharmD[2,3]; McEvoy A, PharmD[1]

[1]Premise Health, [2]University of South Carolina College of Pharmacy, [3]Kennedy Pharmacy Innovation Center

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]
- Those with an anxiety disorder are three to five times more likely to go to the doctor and six times more likely to be hospitalized for psychiatric disorders than those who do not suffer from anxiety disorders.[3]
- Eighty-five percent of people 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.[4]
- A needs assessment at the employer-based health center identified a gap in services related to medication management. An analysis of medications prescribed and managed at the health center indicated potential for significant patient impact and cost reduction through implementation of pharmacogenomics service.

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
- 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

Internal	• Time for team member training • Corporate-level decision making delays • Debate over proper storage of results • Employer approval of pilot and related expense
External	• Considerations for protection of patient data • Time for external contractor to develop site-specific materials

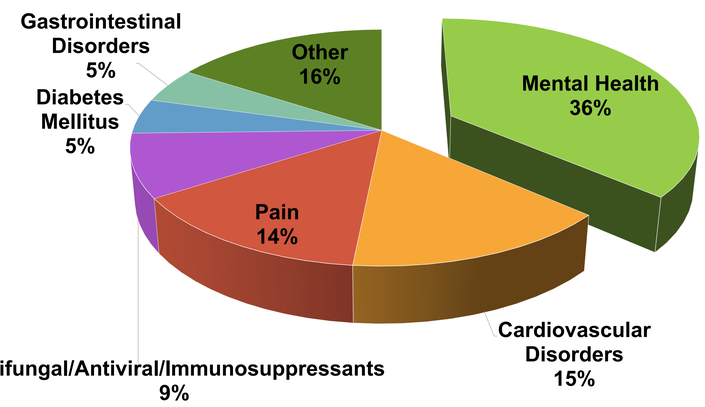
RESULTS

- 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

1. **Identification of potential pilot patients**
   - 18 years or older, provider referral or patient self-selects
   - Completion of interest survey, electronically
2. **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
3. **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
4. **First patient appointment with clinical pharmacist**
   - Patient receives initial consult with pharmacist and signs consent form
   - Collection of buccal swab and mailing to laboratory
5. **Results obtained from lab**
   - Results provided within 5-7 days
   - Reviewed by clinical pharmacist
6. **Clinical pharmacist consult with provider**
   - Recommendations will be made for medication optimization
   - Assess potential for referral to genetic counselor
7. **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
8. **Follow-up**
   - Patient follow-up call will be scheduled with clinical pharmacist within 60 days
   - Provider and patient will complete patient/provider satisfaction survey

Figure 2: Inclusive Panel of Gene-Drug Associations Available for Pharmacogenomic Testing



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.

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