Poster Number

Assessing pharmacist impact on pharmacogenomic testing implementation in a primary care setting

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BACKGROUND

- Pharmacogenomic (PGx) testing can be performed in primary care setting preemptively or reactively to optimize pharmacotherapy, reduce treatment failures or suboptimal clinical outcomes, and minimize toxicity[1]
- More than 150 FDA-approved medications contain pharmacogenomics information in their labeling[2]
- The American Society of Health-System Pharmacists (ASHP) has highlighted pharmacists' unique position in leading PGx testing initiatives due to their extensive training in pharmacokinetics and pharmacodynamics that is complementary to PGx[3]
- Limited information exists regarding integration of pharmacists in to primary care PGx workflow[1]
- In October 2015, a PGx testing program was implemented in the Assurance Health and Wellness Center (AHWC), an integrated, inter-professional primary care-behavioral health center in Tucson, Arizona
  - ❖ Their services include medical care, behavioral care, Wellness Program (structured 9-week wellness education program for patients with mental health conditions)
  - ❖ In January 2016, a pharmacist was hired to provide clinical services including PGx consultation.

OBJECTIVES

- To evaluate the practical viability of pharmacist-managed clinical pharmacogenetics service in a primary care setting
- To assess the impact of pharmacist integration into the PGx testing workflow

METHODS

- *Retrospective chart reviews*
  - ○ PGx program data was collected for two time periods:
    - ❖ Before pharmacist integration in to clinic - October to December 2015
    - ❖ After pharmacist integration in to clinic - January 2016 to December 2016
- **PGx program evaluation**
  - ○ Main outcome measures compared:
    - ❖ Proportion of patients with PGx reports that were reviewed within 30 days
    - ❖ Median time from test report availability date to test review date
    - ❖ PGx-based therapy recommendations
  - ○ Prescriber acceptance rates of pharmacist recommendations
  - ○ Assessment of recommendation implementation
- *Statistical analysis*
  - ❖ Non-normally distributed continuous data were assessed using a Mann Whitney U test
  - ❖ Proportional data were assessed using a chi-square or Fisher's exact test
  - ❖ Alpha level set at 0.05

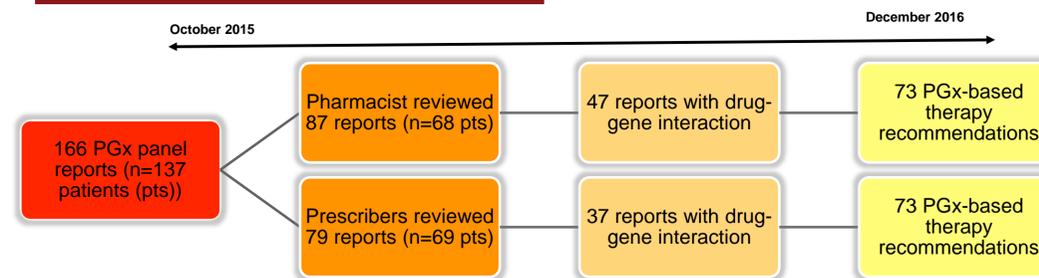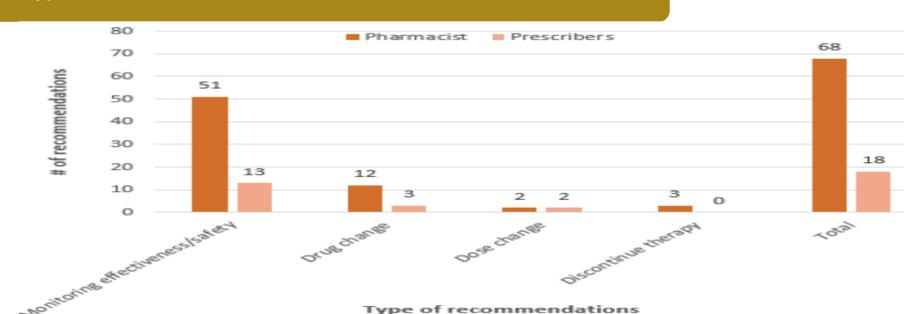## RESULTS

Figure 1. Number of PGx reports reviewed

October 2015 → December 2016

166 PGx panel reports (n=137 patients (pts)) →

- Pharmacist reviewed 87 reports (n=68 pts) → 47 reports with drug-gene interaction → 73 PGx-based therapy recommendations
- Prescribers reviewed 79 reports (n=69 pts) → 37 reports with drug-gene interaction → 73 PGx-based therapy recommendations

Table 1. Most common medication classes identified on PGx reports

	N	%
Antidepressants	52	48 %
Opioids	23	21%
Antipsychotics	14	13%
Others	20	18%
Total	109	100%

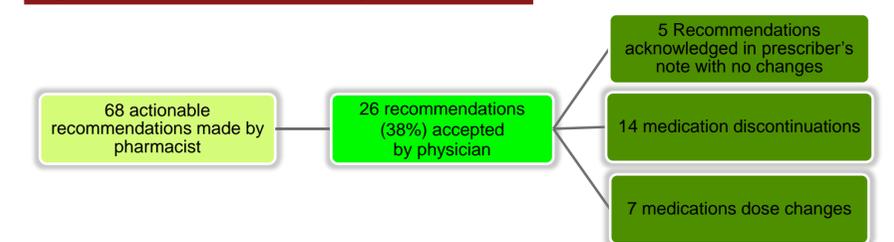**Table 2. Main outcome measures**

	Pharmacist	Prescribers	p-value
Percentage of patients with PGx reports reviewed within 30 days (%)	88%	84%	0.563
Median turn-around time from report availability to review date for pharmacist (days)	16	12	0.06
Number of actionable medication-related recommendations made, N (%)	68 (93%)	18 (25%)	<0.0001

Figure 2. Type of actionable medication-related recommendations

RESULTS (continued)

Figure 2. Recommendation implementation

68 actionable recommendations made by pharmacist → 26 recommendations (38%) accepted by physician →
- 5 Recommendations acknowledged in prescriber's note with no changes
- 14 medication discontinuations
- 7 medications dose changes

DISCUSSION

- This evaluation highlights the leadership role of the pharmacist in a primary care setting and in helping improve patient outcomes.
- Potential barriers for implementation of pharmacogenomic testing in primary care setting:[1]
  - ◇ Lack of adequate knowledge and experience about pharmacogenomics testing
  - ◇ Lack of integration into electronic health record systems
  - ◇ Cost and uncertainty of reimbursement
- More research is needed to evaluate these services among diverse populations and in similar settings

Limitations
  - ◇ Small sample size limits the generalizability
  - ◇ Data collected from one health center with two prescribers (a primary care physician and a psychiatrist); one pharmacist reviewed the PGx reports

CONCLUSIONS

- This retrospective evaluation of a pharmacist-managed clinical pharmacogenomics service showed statistically significant differences in numbers and types of PGx-based recommendations made by the pharmacist compared to prescribers.
- The results are encouraging given that prescribers were receptive to pharmacist-led PGx testing results review and interpretation.

CONTRIBUTION TO COMMUNITY

There is limited number of primary clinics in Arizona offering PGx testing to their patients due to the newness of this field. This evaluation showed that pharmacists can serve an integral role in applying pharmacogenomics testing in to clinical practice to improve the quality and safety of health care. Implementing a pharmacist-managed clinical pharmacogenomics service in clinic setting can increase patient's access to PGx testing.

REFERENCES

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