

ASHP

BEST PRACTICES

AWARD

Pharmacist-led large scale implementation facilitation of panel-based pharmacogenomics testing

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Nothing to Disclose

VA

U.S. Department of Veterans Affairs

Introduction

Veterans Health Administration

Largest Integrated Healthcare System¹

- 1,380 healthcare facilities comprised of 170 medical centers and 1,193 outpatient sites
- 9.1 million Veterans enrolled

Pharmacogenomics (PGx) Clinical Utility in VA

- Treatment guided by PGx testing may reduce adverse drug events by 30%²
- Evaluations of the Veteran population, found 1 of 2 Veterans will be newly prescribed a medication informed by PGx over a 4-year period with clinically significant findings impacting new prescriptions in approximately 1 in 10 Veterans.³

National Pharmacogenomics Program (NPP)

- Founded in 2019 to facilitate remote deployment of PGx testing across VHA
- Offers panel testing of up to 21 genes impacting over 90 commonly prescribed medications
- Provides operational laboratory implementation support, consultation services, informatics infrastructure for clinical decision support

Clinical Pharmacist Practitioners (CPP)

Pharmacy Workforce

- Of VA's 11,766 Clinical Pharmacists, 6,238 (53%) are Clinical Pharmacist Practitioners (CPP) with advanced practice prescriptive authority, provision of comprehensive medication management (CMM)

Expanding Clinical Pharmacist Practitioners in PGx (EXCLAIM)

- In fiscal year (FY) 2023, the hiring process began for 85 CPPs to
 - Drive **implementation** of PGx testing within and across facilities
 - Diffuse PGx **education** and training to providers
 - Provide PGx guided **CMM**
- Simultaneously, 6 Clinical Pharmacy Technicians (CPhT) were hired to support the PGx CPP with the return of PGx results, communication and education initiatives, and contribute to clinical applications

Description of the Program

Part 1: Training

87 CPPs completed 8-week implementation training

Academic Detailing Training:

51 On-demand training

37 Live, virtual 3-day basic skills training

10 In-person advanced skills

9 Already trained

87 CPPs obtained PGx certification

Part 2: Practice Diffusion

- PGx CPPs were trained and empowered to serve as change agents offering knowledge translation services
- Strategies included individual or small group outreach visits with clinicians and other activities such as in-services and stakeholder engagement

Educational Outreach for Diffusion

July 2023 – June 2025

9,600 Outreach visits with roughly 6,800 unique clinicians

6,000 PGx diffusion activities (e.g. program management, in-services, and stakeholder engagement, etc.)

44% Documented by Regional/Facility-Based Detailers

56% Documented by PGx CPPs

31% Documented by Regional/Facility-Based Detailers

69% Documented by PGx CPPs

Part 3: Implementation Tools

Data Tools

- To identify patients who may benefit from testing
- To identify patients with PGx test results and associated high, moderate, and low priority drug-gene interactions
- Metric dashboards to monitor progress and identify opportunities for further implementation

Practice Workflows & Toolkits

- Clopidogrel in patients undergoing percutaneous intervention (PCI)
- Dihydropyrimidine dehydrogenase (DPYD) and fluoropyrimidine chemotherapies
- Treatment resistant depression
- Primary care patients prescribed antidepressants
- Statins
- Solid organ transplant
- Anti-emetics
- Surveillance

Part 4: CPP Patient Care

CPP PGx-related Encounters FY23-FY25

- Over 44,000 Veterans have been provided by PGx CPP care
- Care delivery model included chart consult, secure messaging, telephone, video, and face to face visits
- Clinical interventions were related to “monitoring” (56%), “other” (11%), “dose change” (10%), and “non-pharmacologic intervention” (9%)

Clinical Pharmacy Practitioner Delivered PGx Care

Encounters, Patients and Staff by Fiscal Quarter

Fiscal Year	Encounters	Patients
FY25	35,243	26,489
FY24	23,444	17,784
FY23	2,071	1,897
Total	60,758	44,715

Experience with the Program

PGx CPPs were key to PGx clinical practice expansion

- To date, 97% (85/87) and 100% (6/6) of the CPP and CPhT positions requested have been onboarded and trained, amounting to 81% of enterprise-wide PGx CPP coverage
- 93% (154/170) of medical centers have implemented PGx testing capabilities, up from 27% (45/170)
- Over a two-month period, 193 high-priority drug-gene interactions were identified on surveillance data tools, 94.8% of which were addressed in less than 14 days.

Adoption of PGx testing associated with implemented workflows over a prior 90-day period

	Facilities with PGx CPP at both the local and/or regional level*	Facilities without PGx CPP at the local and/or regional level*	P-value (PGx CPP support vs none)
% of patients undergoing PCI at VA that have PGx test at time of PCI or any time prior	21% (116/553)	4.22% (18/427)	<0.00001
% of patients newly started on a fluoropyrimidine and PGx ordered	61.39% (124/202)	33.3% (56/168)	<0.00001
% Interventional psychiatry patients with PGx orders	38.6% (128/332)	16.9% (24/142)	0.001
% of patients newly started on antidepressant by primary care with depression diagnosis and PGx ordered	4.17% (216/5186)	0.88% (56/6343)	<0.00001

*# of patients who received PGx testing over # total patients in the population of interest

Descriptive pilot metrics associated with PGx CPhT activities

Activity	Duration	Metric
PGx education to support oral informed consent to testing	12 months	624 patients
PGx population health actionable PGx findings triage review	4 months	4,470 PGx results reviewed with 26.4% actionability rate
PGx population health referrals to PGx CPP specialist	4 months	27 (40%) of results with higher risk stratification referred to PGx CPP specialist for higher level of care
Passive clinical decision support documentation of PGx results	2 months	228 PGx notes entered

Discussion / Conclusion

- This initiative expanded the large scale, multi-site, remote deployment of a multi-gene PGx panel and demonstrated the key role of the PGx CPP and CPhT in healthcare system wide application
- Training in clinical application and implementation strategies were critical to optimizing the full utility of the CPP role to catalyze PGx practice adoption
- Educational outreach by PGx CPPs extends knowledge translation services to all healthcare team members, accommodating varying levels of expertise and promoting PGx as a tool for medication safety and efficacy among non-pharmacist clinicians
- Innovative implementation tools provided data-driven focus, evidence-based resources, and best practices
- This program marks the first application of pharmacovigilance in PGx, with PGx CPPs creating a computerized compendium of high-evidence drug gene pairs for clinical utility, guiding practice workflows, and enhancing medication optimization
- This multi-faceted approach to PGx practice lays the groundwork for continued expansion of precision medicine applications, the importance of the pharmacist's role, innovative PGx practices, and clinical integration of PGx throughout the healthcare system

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