MDFORLIVES IN-DEPTH INSIGHT REPORT

Pharmacogenomics: Is Pharmacy Workflow Ready?

Pharmacist perspectives on PGx confidence, education, software integration, workflow barriers and clinical authority.

Pharmacists · 6 countries · Global peer perspectives

155 Complete responses	**197** Survey records	**6** Countries represented	**78.7%** Completion rate

THE PEER QUESTION

If a PGx result reached the dispensing screen today, would the workflow know what to do with it?

FDA maintains pharmacogenomic biomarker and pharmacogenetic association resources across many drug-gene relationships, while CPIC guidelines are designed to help clinicians use available genetic results to optimize drug therapy. The implementation challenge is therefore increasingly operational. The MDForLives data shows a profession with strong interest in PGx, but with inconsistent exposure, education and decision support at the point of dispensing.

FDA notes that pharmacogenomics can help identify responders and non-responders, avoid adverse events and optimize dose. CPIC focuses on how available genetic results should be used for drug therapy, not on whether a test should be ordered.

> **Coverage:** United States, United Kingdom, Canada, Italy, France, Germany. Findings describe the opinions and reported practice or operating patterns of participating respondents. Question-level response bases vary because not every survey record answered every item.

EXECUTIVE SUMMARY

The pattern in one view

The pattern is not resistance to precision medicine. Pharmacists are being asked to operationalize genomic decisions before many dispensing environments are built to support them. PGx becomes routine when the result, guideline logic and recommended action appear inside the same workflow where the medication is verified.

01 / PEER SIGNAL

PGx is still rarely encountered

56.5% Rare or no routine exposure remains the most common practice pattern.

02 / PEER SIGNAL

Education stayed theoretical

38.5% This is the largest single response on pharmacy-school PGx preparation.

03 / PEER SIGNAL

Manual lookup is still required

31.9% Many must leave the dispensing workflow to find gene-drug guidance.

04 / PEER SIGNAL

Some systems cannot store PGx data

31.9% Software architecture is an equally common decision-support gap.

SECTION 01

The confidence gap is not limited to a small early-career group

CONTEXT

Most respondents have more than six years in practice, yet confidence interpreting complex PGx reports remains mixed.

DATA

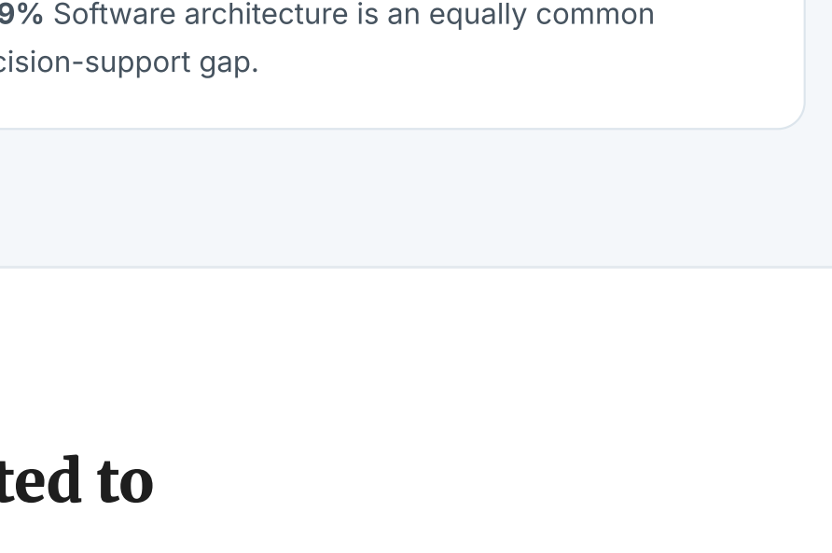
30.9% feel comfortable interpreting PGx reports but prefer to double-check references. Response pattern: Extremely comfortable: 11.1%, Comfortable: 30.9%, Neutral / guideline-dependent: 24.1%, Uncomfortable: 18.5%, Extremely uncomfortable: 15.4%.

INSIGHT

Experience in pharmacy practice does not automatically equal experience with genomic interpretation.

WHY IT MATTERS

Upskilling needs to be targeted to applied gene-drug decisions, not assume that seniority closes the PGx competency gap.


The confidence gap is not limited to a small early-career group

Percent of responding participants at this question

SECTION 02

Formal education often stopped at theory

CONTEXT

Only a minority say pharmacy school gave them actionable or even adequate practical preparation.

DATA

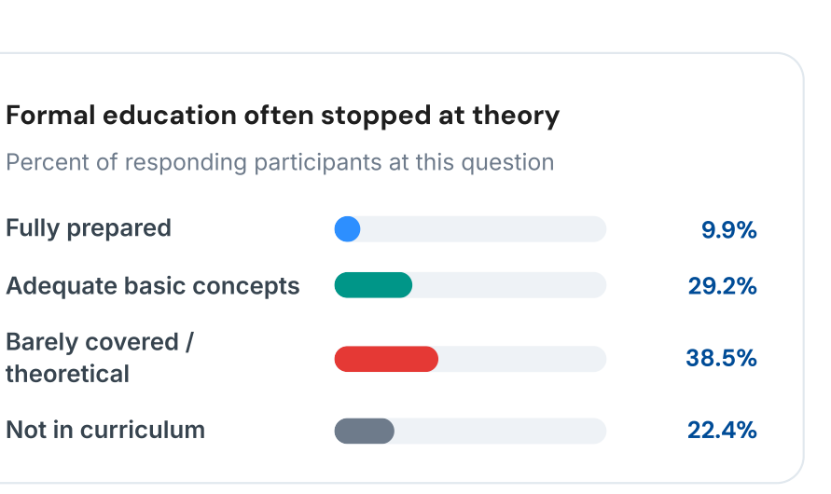
38.5% say PGx was barely covered and remained theoretical in formal pharmacy education. Response pattern: Fully prepared: 9.9%, Adequate basic concepts: 29.2%, Barely covered / theoretical: 38.5%, Not in curriculum: 22.4%.

INSIGHT

The implementation gap begins before workflow. Many pharmacists were trained when PGx was still treated as emerging science rather than routine therapeutic infrastructure.

WHY IT MATTERS

Education needs case-based interpretation, phenotype translation and medication action pathways that resemble real practice.


Formal education often stopped at theory

Percent of responding participants at this question

SECTION 03

PGx remains episodic rather than routine

CONTEXT

More than half rarely or never encounter patient-specific PGx data in daily practice.

DATA

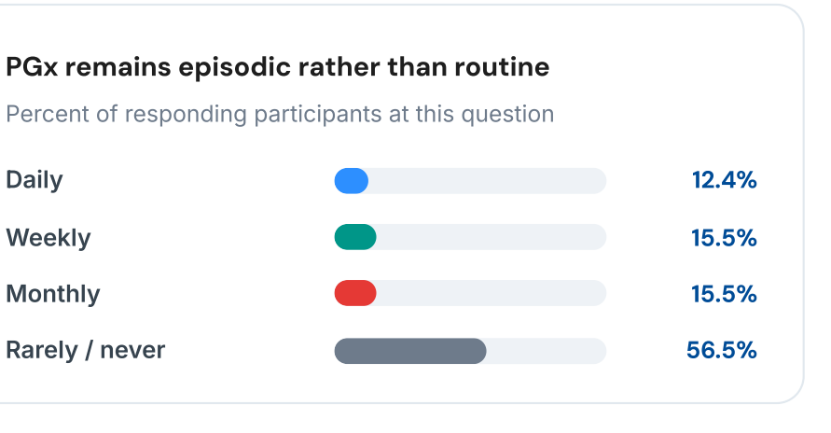
56.5% rarely or never review or use patient-specific PGx data. Response pattern: Daily: 12.4%, Weekly: 15.5%, Monthly: 15.5%, Rarely / never: 56.5%.

INSIGHT

Low exposure reinforces low confidence. Without repetition, PGx remains a reference exercise rather than a familiar clinical workflow.

WHY IT MATTERS

Routine implementation needs enough test availability and system visibility for pharmacists to build pattern recognition and practice fluency.


PGx remains episodic rather than routine

Percent of responding participants at this question

SECTION 04

The dispensing screen is still the genomic blind spot

CONTEXT

Only about one in five respondents has automated gene-drug clinical decision support during verification or dispensing.

DATA

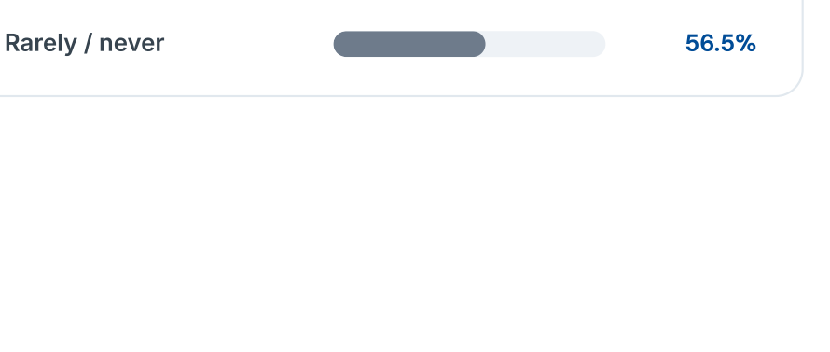
31.9% must manually look up PGx data and guidelines outside the dispensing workflow. Response pattern: Automatic alerts: 21.9%, Manual lookup required: 31.9%, Software cannot store genetic data: 31.9%, Unsure: 14.4%.

INSIGHT

PGx cannot scale if genetic information lives outside the medication workflow. Manual lookup turns every case into an extra cognitive and time burden.

WHY IT MATTERS

The most valuable implementation layer may be interoperable clinical decision support that translates a stored result into an actionable medication recommendation.


The dispensing screen is still the genomic blind spot

Percent of responding participants at this question

SECTION 05

The barrier is distributed across time, confidence, reimbursement and software

CONTEXT

No single operational barrier dominates, which suggests PGx implementation is a systems problem rather than one missing feature.

DATA

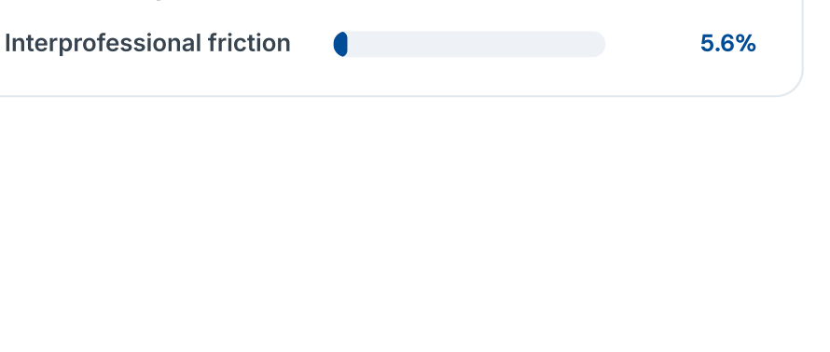
26.9% select time constraints as the single biggest PGx implementation barrier. Response pattern: Time constraints: 26.9%, Confidence gap: 25.6%, Financial / reimbursement: 22.5%, Software / logistics: 19.4%, Interprofessional friction: 5.6%.

INSIGHT

Fixing only education or only software is unlikely to be enough. Each layer affects whether PGx can become routine.

WHY IT MATTERS

Successful programs need a bundled implementation model covering result access, decision support, training, reimbursement and prescriber collaboration.


The barrier is distributed across time, confidence, reimbursement and software

Percent of responding participants at this question

SECTION 06

Pharmacists support a larger role, especially where consequences are high

CONTEXT

Support for ordering authority is strong, while oncology/immunology and psychiatry are the most selected areas for immediate protocol-driven PGx.

DATA

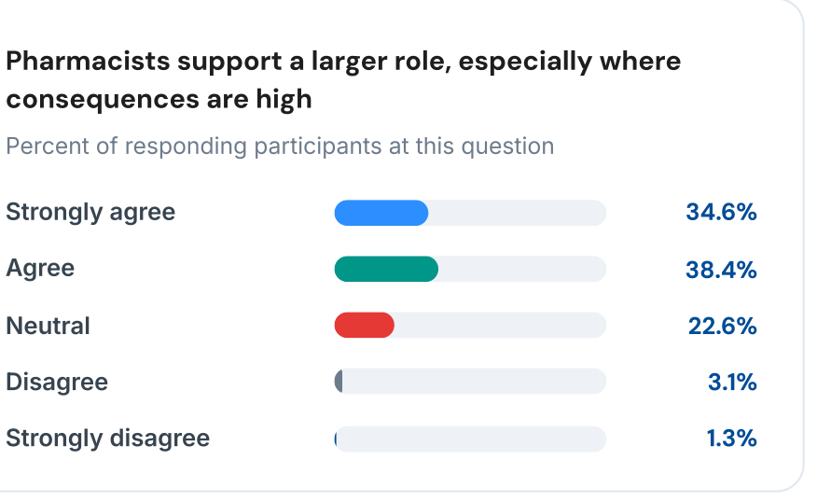
38.4% agree pharmacists should have independent authority to order PGx tests for medication optimization. Response pattern: Strongly agree: 34.6%, Agree: 38.4%, Neutral: 22.6%, Disagree: 3.1%, Strongly disagree: 1.3%.

INSIGHT

The profession appears willing to accept more responsibility, but authority without workflow support could simply move more uncompensated complexity to pharmacists.

WHY IT MATTERS

Scope expansion is most sustainable when access, decision support, training and reimbursement expand with it.


Pharmacists support a larger role, especially where consequences are high

Percent of responding participants at this question

OPEN-ENDED PERSPECTIVE

What respondents said when the answer choices disappeared

Integrated decision support is the dominant workflow request

Respondents repeatedly ask for PGx results and actionable recommendations to appear inside the EHR or dispensing platform rather than in a separate portal.

Training and confidence remain a practical barrier

Many comments ask for more education, standardized protocols and employer-supported upskilling.

Time and staffing shape whether PGx can fit into dispensing

Open feedback highlights the challenge of adding testing, interpretation, counselling and prescriber communication to already busy workflows.

Reimbursement and access determine whether the workflow can scale

Insurance coverage, testing availability and the economics of implementation appear alongside software as adoption constraints.

Standardization matters

Several respondents call for universal formats, protocol order sets and interoperable storage rather than one-off local solutions.

PRACTICE PATTERN

What may be sitting underneath the responses

PGx needs to appear at the point of decision

Separate portals and manual lookups make genomics easy to miss during a busy dispensing workflow.

Confidence grows with embedded guidance

Education matters, but decision support can translate knowledge into consistent action at the moment it is needed.

Authority alone will not create scale

Ordering rights have limited value if time, reimbursement and interoperable software remain unresolved.

CLOSING PERSPECTIVE

Pharmacogenomics: Is Pharmacy Workflow Ready?

The pattern is not resistance to precision medicine. Pharmacists are being asked to operationalize genomic decisions before many dispensing environments are built to support them. PGx becomes routine when the result, guideline logic and recommended action appear inside the same workflow where the medication is verified.

PEOPLE ALSO ASK

Clinical questions about Pharmacogenomics implementation in pharmacy practice

What is pharmacogenomics (PGx)?

Pharmacogenomics studies how genetic variation can influence medication response, drug exposure, effectiveness or risk of adverse events. Some gene-drug relationships are strong enough to inform prescribing or dosing decisions.

What is the difference between FDA pharmacogenomic information and CPIC guidelines?

FDA labeling and association tables describe regulatory evidence and drug-specific pharmacogenomic information. CPIC guidelines focus on how to use an available genetic result to optimize drug therapy for supported gene-drug pairs.

Does a PGx result determine the correct drug by itself?

No. Genetic variation is one factor among many, including diagnosis, age, organ function, interacting medicines and treatment goals. PGx information should be interpreted in the full clinical context.

Why is clinical decision support important for PGx?

Many PGx results are persistent and may affect multiple medications over time. Decision support can surface a stored result when a relevant drug is prescribed or dispensed and link it to an actionable recommendation.

Can pharmacists play a role in PGx testing and interpretation?

Pharmacists are medication experts and can contribute to test selection, result interpretation, medication review, patient education and prescriber recommendations. Ordering authority varies by jurisdiction and practice model.

Are direct-to-consumer genetic results the same as clinical PGx testing?

Not necessarily. Consumer reports may test different variants, use different interpretation frameworks or lack the clinical context needed for medication decisions. Clinically actionable use may require confirmation and review against validated guidance.

Share your perspective.

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SELECTED EXTERNAL CONTEXT

- FDA Pharmacogenomic Biomarkers in Drug Labeling
- FDA Table of Pharmacogenetic Associations
- CPIC Guidelines

> **Source note:** External references provide clinical, operational or regulatory context. All MDForLives percentages and response counts come from survey SGID 8916072.

The Global Pulse of Healthcare
Real Opinions to Insights. Validated by Data.

Visual Graphs and Backend Data

Percentages and counts are reproduced from MDForLives survey SGID 8916072. Question bases vary across partial completes.

Survey profile

Metric	Value
Completion rate	78.7%
Complete	155
Partial	42
Total survey records	197
Countries	United States, United Kingdom, Canada, Italy, France, Germany

Section 01: The confidence gap is not limited to a small early-career group

Response option	Percent	Responses
Extremely comfortable	11.1%	18
Comfortable	30.9%	50
Neutral / guideline-dependent	24.1%	39
Uncomfortable	18.5%	30
Extremely uncomfortable	15.4%	25

Section 02: Formal education often stopped at theory

Response option	Percent	Responses
Fully prepared	9.9%	16
Adequate basic concepts	29.2%	47
Barely covered / theoretical	38.5%	62
Not in curriculum	22.4%	36

Section 03: PGx remains episodic rather than routine

Response option	Percent	Responses
Daily	12.4%	20
Weekly	15.5%	25
Monthly	15.5%	25
Rarely / never	56.5%	91

Section 04: The dispensing screen is still the genomic blind spot

Response option	Percent	Responses
Automatic alerts	21.9%	35
Manual lookup required	31.9%	51
Software cannot store genetic data	31.9%	51
Unsure	14.4%	23

Section 05: The barrier is distributed across time, confidence, reimbursement and software

Response option	Percent	Responses
Time constraints	26.9%	43
Confidence gap	25.6%	41
Financial / reimbursement	22.5%	36
Software / logistics	19.4%	31
Interprofessional friction	5.6%	9

Section 06: Pharmacists support a larger role, especially where consequences are high

Response option	Percent	Responses
Strongly agree	34.6%	55
Agree	38.4%	61
Neutral	22.6%	36
Disagree	3.1%	5
Strongly disagree	1.3%	2