MDForLives

THE GLOBAL PULSE OF HEALTHCARE · PHARMACY INSIGHT REPORT

Pharmacy Alert Fatigue: Can AI Make Prescription Verification Safer?

A detailed view of how pharmacists experience alert fatigue, where clinical decision support still lacks patient-specific context, how AI and automation are entering prescription verification, and what safeguards shape confidence in greater autonomy.

ALERTS → CLINICAL CONTEXT → VERIFICATION → AUTOMATION → HUMAN OVERSIGHT

166	6	83.1%
Survey records	Countries represented USA · UK · Canada · Italy · France · Germany	Completion rate

WHY THIS REPORT

Pharmacists are being asked to trust smarter automation while still carrying the consequences of missed medication risk

Medication verification is already technology-heavy. Pharmacists work through drug-interaction warnings, dose checks, renal and hepatic considerations, barcode systems, product identity checks, dispensing platforms, and growing expectations for automation. The pressure point is not simply the number of tools. It is whether those tools reduce uncertainty or create another layer of review.

The survey examines that boundary: how much alert noise pharmacists believe they encounter, how much shift time is spent clearing low-value warnings, whether current software uses real-time laboratory context, how far AI/ML suppression and computer vision have actually been deployed, and what pharmacists think should remain under human control.

> **Methodology:** MDForLives Pharmacist Insight Survey_Aug, SGID 8953041. The source report contains 166 survey records across six countries with an 83.1% completion rate. Because the export includes partial records, respondent bases vary by item: country metadata reflects 164 records, practice setting 141, professional role 140, and the core alert/AI questions 138. Percentages and response counts in this report follow the source export exactly. Administrative tracking, bad-ID, required-text, after-question, and honeypot fields were excluded from editorial analysis.

EXECUTIVE SUMMARY

Six signals that define the pharmacy automation trust gap

INSIGHT 01

31.9%

Half to three-quarters of alerts is the largest

INSIGHT 02

49.3%

Real-time lab context is still missing where it

override band

The most common estimate places 50% to 74% of drug-interaction or dosing alerts in the clinically irrelevant or overridden range.

matters

Nearly half say current software is ineffective or non-existent at using current patient lab values to adjust or suppress dosing alerts.

INSIGHT 03

54.3%

Legacy rule-based alerting still dominates

More than half say their organization has not moved beyond conventional rule-based alerts to AI/ML-driven dynamic suppression.

INSIGHT 04

42.0%

The final product check remains highly manual

Pharmacist-only visual inspection is the most selected method for confirming physical drug contents before final dispensing.

INSIGHT 05

34.8%

Support for autonomy is conditional

The largest single support group would allow AI pre-verification only for selected maintenance drug classes under strict protocols.

INSIGHT 06

57.2%

Safety and liability set the trust threshold

Risk of missing a critical warning and ambiguity over liability are tied as the two most selected AI-adoption barriers.

01

PRACTICE CONTEXT

The survey spans community, hospital, independent, and leadership pharmacy roles, with frontline practice dominating the response mix

41.8% work primarily in community or retail chain pharmacy, while 69.3% identify as staff or clinical pharmacists.

CONTEXT

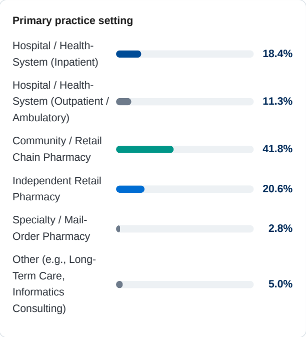
Alert fatigue and automation do not land in one uniform pharmacy environment. A community pharmacist may be balancing dispensing volume, counseling, vaccinations, prescriber calls, and product verification, while a hospital pharmacist may be verifying orders against laboratory values, acuity, organ function, and rapidly changing therapy.

WHAT THE DATA SHOWS

Community or retail chain pharmacy is the largest primary setting at 41.8%, followed by independent retail pharmacy at 20.6%, hospital inpatient at 18.4%, hospital outpatient or ambulatory at 11.3%, other settings at 5.0%, and specialty or mail-order pharmacy at 2.8%. Staff or clinical pharmacists make up 69.3% of the role question, with directors, managers, or executives at 27.1%.

THE INSIGHT

The findings that follow are therefore shaped heavily by professionals close to everyday verification work, while still including a meaningful management perspective. That matters because the value of automation can look different from the verification queue than it does from an enterprise technology roadmap.



WHY IT MATTERS

A useful AI strategy has to account for setting and workload. The same suppression rule, escalation threshold, or verification workflow may not fit inpatient clinical review, community dispensing, and centralized operations equally well.

02

ALERT BURDEN

The alert stream is large enough that many pharmacists place most warnings in a low-value or overridden range

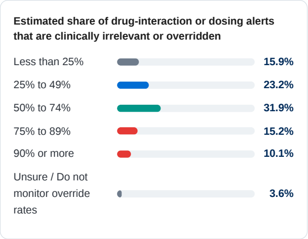
31.9% estimate that 50% to 74% of drug-interaction or dosing alerts are clinically irrelevant or overridden.

CONTEXT

Drug-interaction and dosing alerts are intended to prevent medication harm, but relevance varies with patient history, concomitant therapy, severity, organ function, timing, and local practice. When similar warnings recur across familiar situations, pharmacists still have to acknowledge or evaluate them before they can return to the core verification task.

WHAT THE DATA SHOWS

The 50% to 74% band is the largest response at 31.9%. Another 23.2% estimate 25% to 49%, 15.2% estimate 75% to 89%, and 10.1% estimate 90% or more. By comparison, 15.9% estimate fewer than 25%, while 3.6% are unsure or do not monitor override rates.


Estimated share of drug-interaction or dosing alerts that are clinically irrelevant or overridden

THE INSIGHT

The distribution suggests pharmacists are not experiencing alert fatigue as an edge case. A substantial share of respondents place a large proportion of warnings in the clinically irrelevant or overridden category, which can weaken confidence in interruption-heavy decision support.

WHY IT MATTERS

The objective should not be to maximize the number of alerts presented. It should be to maximize the clinical value of the interruptions that remain. ISMP similarly recommends reducing invalid, insignificant, or overly sensitive computer alerts during medication safety tasks so important notifications can command attention.

03

WORKFLOW COST

Low-value alerts take time away from the rest of the verification workload

34.1% estimate spending 15 to 30 minutes per shift reviewing and clearing low-value or repetitive software alerts.

CONTEXT

Alert review rarely happens in isolation. Pharmacists move between order verification, dispensing checks, clinical review, patient counseling, pharmacy operations, phone calls, documentation, and questions from other professionals. A repetitive alert adds not only seconds but another interruption point in a task that depends on concentration.

WHAT THE DATA SHOWS

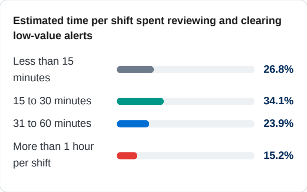
Fifteen to 30 minutes is the largest time band at 34.1%. Another 23.9% estimate 31 to 60 minutes per shift, and 15.2% report more than an hour. Only 26.8% place low-value alert clearing below 15 minutes.

THE INSIGHT

The burden is distributed rather than confined to a small outlier group. Even the middle bands represent recurring work that does not directly add value if the warning is already known, clinically irrelevant, or too generic to alter the pharmacist’s decision.

WHY IT MATTERS

Reducing low-value alert work can protect attention, but optimization must be risk-sensitive. High-severity warnings still need to interrupt. The design challenge is distinguishing “must stop” from “already considered” without creating a blind spot.


Estimated time per shift spent reviewing and clearing low-value alerts

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04

CLINICAL CONTEXT

The biggest technical gap is not a lack of alerts, but a lack of current patient context inside them

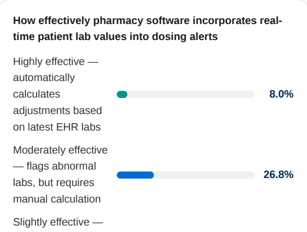
49.3% say their software is ineffective or non-existent at using real-time patient lab values to automatically adjust or suppress dosing alerts.

CONTEXT

Dose appropriateness can depend on renal function, hepatic function, age, weight, drug level, and other current patient data. If decision support cannot reliably access those values, a pharmacist may receive a warning that is technically correct in the abstract but incomplete for the specific patient.

WHAT THE DATA SHOWS

Ineffective or non-existent integration is the largest response at 49.3%. Moderately effective systems that flag abnormal labs but still require manual calculation account for 26.8%. Slightly effective systems that frequently miss updated values account for 15.9%. Only 8.0% describe automatic adjustment from the latest EHR laboratory values as highly effective.

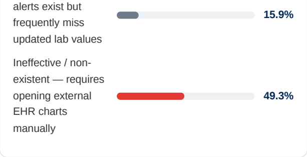

How effectively pharmacy software incorporates real-time patient lab values into dosing alerts

THE INSIGHT

The survey describes a context gap. Pharmacists often still have to fetch the information that would tell the software whether a warning should be escalated, recalculated, or suppressed.

WHY IT MATTERS

Smarter suppression depends on reliable data integration. If current labs are missing, stale, or difficult to reconcile, more advanced logic can simply automate the same incompleteness faster. Data quality and interoperability therefore sit upstream of AI performance.



05

AI DEPLOYMENT

Most pharmacists are still working with legacy alert logic rather than dynamic AI suppression

54.3% say their health system or pharmacy software still relies on legacy, rule-based alerts.

CONTEXT

AI-enabled alert management can theoretically move beyond fixed rules by using patient context, historical patterns, severity, and other signals to prioritize warnings. But the value of that concept depends on actual deployment, integration, and validation in the pharmacy workflow.

WHAT THE DATA SHOWS

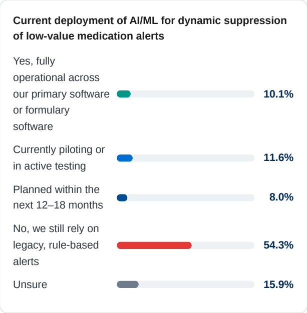
Legacy rule-based alerting is the dominant response at 54.3%. Fully operational AI/ML suppression is reported by 10.1%, active pilots by 11.6%, and planned deployment within 12 to 18 months by 8.0%. Another 15.9% are unsure.

THE INSIGHT

The autonomy debate is ahead of the installed base. Many respondents are being asked to form opinions about AI while their current environment still struggles with conventional alert precision and data integration.

WHY IT MATTERS

A pharmacy cannot leap from noisy rules to trusted autonomy in one step. The pathway requires validated models, integrated data, clear monitoring, governance, pharmacist involvement in design, and evidence that new suppression logic improves relevance without hiding important risk.


Current deployment of AI/ML for dynamic suppression of low-value medication alerts

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06

PHYSICAL VERIFICATION

The physical dispensing check remains predominantly human or barcode based

42.0% use manual visual inspection by a pharmacist only, while 40.6% rely on barcode scanning of stock bottles or vials.

CONTEXT

Prescription verification has both a clinical side and a physical product side. Even when the dose and drug choice are appropriate, the final dispensed product still has to match the intended medication, strength, dosage form, and quantity.

WHAT THE DATA SHOWS

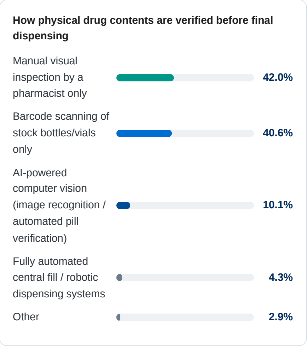
Manual visual inspection leads at 42.0%, followed closely by barcode scanning at 40.6%. AI-powered computer vision is used by 10.1%, fully automated central fill or robotic dispensing by 4.3%, and other methods by 2.9%.

THE INSIGHT

AI image recognition remains a minority workflow. Most respondents still depend on a pharmacist’s visual check, a barcode, or both. That helps explain why open-ended responses focus heavily on image matching, barcode reliability, and human confirmation when visual characteristics are uncertain.

WHY IT MATTERS

Computer vision can become an additional verification layer, but it must perform across real-world variation in tablet appearance, lighting, packaging, manufacturer changes, and image quality. A system that is accurate only under ideal conditions will not earn confidence at the dispensing bench.



How physical drug contents are verified before final dispensing

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07

AUTONOMOUS PRE-VERIFICATION

Pharmacists are open to narrowly defined automation more than unrestricted autonomy

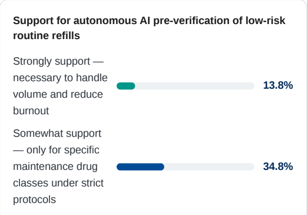
34.8% somewhat support AI pre-verification only for specific maintenance drug classes under strict protocols.

CONTEXT

Routine refill verification is a natural target for automation because some cases are predictable, stable, and protocol-driven. The risk is that “routine” can conceal a change in organ function, interacting therapy, duplicate medication, unusual dose, adherence issue, or other patient-specific factor that shifts the decision from algorithmic to clinical.

WHAT THE DATA SHOWS

Somewhat support is the largest category at 34.8%, followed by somewhat oppose at 26.1%, neutral or undecided at 18.1%, strongly support at 13.8%, and strongly oppose at 7.2%.



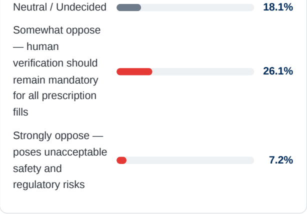
Support for autonomous AI pre-verification of low-risk routine refills

THE INSIGHT

Support is conditional rather than binary. The most common positive position is explicitly limited to selected maintenance drug classes under strict protocols, while the most common negative position keeps human verification mandatory for every fill.

WHY IT MATTERS

The practical design question is the boundary of autonomy: which prescriptions are truly low risk, which data must be current, what conditions automatically escalate to a pharmacist, and whether every AI decision remains traceable enough to audit after the fact.



08

AI ADOPTION BARRIERS

The strongest resistance is tied to patient safety and accountability, not unfamiliarity with technology

57.2% select risk of missing a critical clinical warning, and 57.2% select ambiguity over legal and clinical liability, among their top two barriers.

CONTEXT

Pharmacy automation affects a medication-use process where errors can carry direct clinical consequences. Trust therefore depends on more than convenience, accuracy averages, or faster throughput. Pharmacists need to know what the system can miss, how its decisions can be explained, and who remains responsible.

WHAT THE DATA SHOWS

Risk of missing a critical warning and ambiguity over liability are tied at 57.2%. Poor integration with existing EHR or pharmacy management systems is selected by 33.3%, staff resistance by 29.0%, and lack of algorithm transparency by 23.2%. Respondents selected their top two barriers.

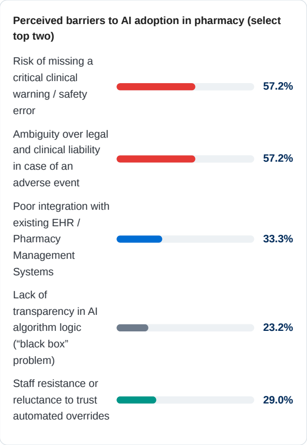
THE INSIGHT

The leading concerns are substantive governance questions. They are not simply fear of change. Pharmacists are signaling that greater automation must come with stronger assurance around safety, accountability, integration, and transparency.

WHY IT MATTERS

The FDA's 2026 Clinical Decision Support Software guidance clarifies how different CDS functions may be treated under U.S. device law, while ASHP's AI statement emphasizes pharmacist leadership in deciding where AI should augment or automate medication-use tasks. Those external frameworks reinforce the same point seen in the survey: governance is part of clinical adoption, not an afterthought.

Perceived barriers to AI adoption in pharmacy (select top two)



09

THE AUTOMATION BOUNDARY

The most workable future is likely selective automation with explicit escalation back to the pharmacist

34.8% favor limited AI pre-verification under strict protocols, while 49.3% still describe patient-specific lab integration as ineffective or non-existent.

CONTEXT

Autonomy is safest when the system knows enough about the patient to recognize whether a case is actually routine. Yet the same survey shows that real-time lab integration is weak, AI suppression is uncommon, and manual or barcode product checks remain dominant.

WHAT THE DATA SHOWS

The largest support category for autonomous pre-verification is conditional at 34.8%. At the same time, 49.3% report ineffective or absent lab integration, 54.3% still rely on legacy rule-based alerts, and 42.0% use pharmacist-only visual inspection for physical verification.

THE INSIGHT

These findings place the automation boundary in context. Pharmacists may be willing to delegate narrow, repetitive tasks, but the infrastructure required to identify exceptions is not yet consistently mature across respondents.

WHY IT MATTERS

The sequence matters: improve data integration, tune alert relevance, validate specific automation tasks, define human escalation, and measure performance before widening autonomy. That approach makes AI a reliability tool rather than a shortcut around unresolved workflow problems.

34.8% Somewhat support narrow AI pre-verification under strict protocols

49.3% Report ineffective or absent real-time lab integration

OPEN-ENDED PERSPECTIVE

Pharmacists do not ask for one magic feature. They ask for a safety case they can inspect.

The open-ended item asked which single feature, safety safeguard, or regulatory guideline would provide complete confidence in adopting AI-driven prescription verification. The responses are varied, and they do not support one universal answer. What they do reveal is a consistent preference for visible safeguards around the system.

Keep a pharmacist in the verification loop

Several responses explicitly want AI to assist rather than replace the pharmacist, especially when an alert, interaction, unusual dose, or ambiguous product requires clinical judgment.

Prove accuracy across real practice conditions

Respondents ask for long-term accuracy data, extensive testing in varied clinical settings, very low error rates, and evidence that image recognition remains reliable when lighting, tablet color, or appearance changes.

Make decisions auditable and governable

Licensing, governance frameworks, human audit, clear responsibility, and review of why an alert was passed or rejected appear repeatedly as conditions for confidence.

Protect data and preserve safety checks

Confidentiality, drug-interaction screening, barcode reliability, and the ability to flag uncertain cases for human assessment are recurring practical safeguards.

What the qualitative feedback adds: Some respondents are willing to trust AI only when a licensed pharmacist retains final approval. Others focus on evidence of near-error-free performance, external governance, or reliable image matching. A minority explicitly says that no single feature would create complete confidence. The common thread is that trust has to be demonstrated, monitored, and recoverable when uncertainty appears.

PHARMACY PRACTICE LENS

What a safer path from alert fatigue to AI-assisted verification could look like

The survey does not define a universal automation protocol. It does show a sequence that fits the concerns pharmacists repeatedly raise: improve the quality of the current signal, connect the data needed to interpret it, narrow the first automation use cases, and keep a clear human escalation path.

Tier alerts by clinical consequence

Separate high-severity interruptions from informational or repetitive warnings, and measure whether pharmacists act differently when the signal is better targeted.

Bring patient context into the alert

Use current renal, hepatic, laboratory, medication, and patient data where appropriate so the system can identify when a standard rule no longer fits the individual case.

Automate only inside a defined low-risk envelope

Specify the drug classes, refill conditions, data requirements, exception triggers, and escalation rules that must be satisfied before an AI system may pre-verify.

Make every automated decision auditable

Preserve the inputs, logic or rationale available to the user, override history, performance monitoring, error review, and accountability pathway so pharmacists can investigate what happened when a decision is questioned.

PEOPLE ALSO ASK

Frequently asked questions about pharmacy alert fatigue and AI verification

What is alert fatigue in pharmacy?

Alert fatigue occurs when pharmacists are exposed to so many repetitive, low-value, or poorly targeted electronic warnings that important alerts can become harder to distinguish from routine noise. The problem is not the presence of alerts itself, but whether the system prioritizes clinically meaningful information.

Why are drug interaction alerts overridden?

Drug interaction alerts may be overridden when they are judged clinically irrelevant, already known, too broad, duplicated, or not sufficiently tailored to the patient. Override does not automatically mean the alert was inappropriate, so organizations need to examine both alert quality and override context.

Can clinical decision support use kidney and liver function to improve dosing alerts?

Yes. Clinical decision support can incorporate renal function, hepatic function, laboratory values, age, weight, and other patient-specific data when those inputs are available and correctly integrated. The usefulness of the alert depends on data quality, timing, logic, and workflow design.

How can AI reduce alert fatigue in pharmacy?

AI may help prioritize or suppress low-value alerts by using more patient-specific context and patterns than simple rule-based systems. Any deployment still requires validation, monitoring, transparency, and clear escalation rules so clinically important warnings are not missed.

Can AI verify prescriptions without a pharmacist?

Some routine or algorithmic verification tasks may be candidates for automation, but the appropriate level of autonomy depends on the task, evidence of performance, regulatory requirements, local policy, and the risks involved. Pharmacist oversight remains especially important when clinical judgment or uncertainty is high.

What safeguards are important for AI-assisted prescription verification?

Important safeguards include validated performance, strong data quality, auditability, clear responsibility, secure handling of patient information, reliable barcode or image matching where relevant, monitoring for errors, and defined situations that require pharmacist review.

CLOSING PERSPECTIVE

Pharmacy AI will earn trust by becoming better at knowing when not to act alone

The MDForLives data describe a profession that is already deeply dependent on software but not yet convinced that more automation automatically means better medication safety.

Alert burden is substantial, and many pharmacists spend meaningful shift time clearing low-value warnings. Nearly half say their software does not effectively use current laboratory data to tailor dosing alerts, while more than half still rely on legacy rule-based alerting. Physical verification is likewise dominated by pharmacist inspection and barcode scanning rather than computer vision or fully automated dispensing.

Against that backdrop, the cautious response to autonomous pre-verification is coherent. Pharmacists are most open when the task is limited, the protocol is strict, the data are sufficient, and responsibility remains clear. Safety risk and liability are not side concerns. They are the leading barriers. The open-ended responses reinforce the same point through requests for human oversight, proven accuracy, auditability, governance, confidentiality, reliable image or barcode matching, and transparent records of errors.

The practical implication is that pharmacy AI should be built around exception recognition. The technology adds the most value when it removes repetitive work from genuinely routine cases and becomes more conservative as uncertainty rises. That requires better clinical context, stronger alert tuning, validated task-level automation, ongoing performance monitoring, and an explicit handoff back to pharmacist judgment whenever the system cannot support a safe autonomous decision.

1 · Measure alert value, not only alert volume

Track which alerts change pharmacist action, which are repeatedly overridden, and which create work without improving the decision.

2 · Fix the context gap first

Improve access to current patient data before relying on advanced suppression or autonomous verification logic.

3 · Protect the high-risk interruption

Use severity, patient context, and task design to make critical warnings more visible, not less visible, as low-value noise is reduced.

4 · Start autonomy with narrow use cases

Pilot routine, protocol-defined prescription classes where inputs are complete and escalation rules are explicit.

5 · Keep pharmacists in governance

Include frontline pharmacists, informatics specialists, and pharmacy leaders in model selection, testing, monitoring, and exception design.

6 · Make accountability visible

Define who reviews errors, who owns overrides, what is logged, and when human verification becomes mandatory again.

Help future pharmacy insights reflect what happens inside the verification workflow.

Share your perspective with MDForLives and help build a clearer view of medication safety, alert burden, clinical decision support, and responsible pharmacy automation.

Join the Panel

Sources used for this report

1. MDForLives Pharmacist Insight Survey_Aug, SGID 8953041. Source survey report: 166 survey records, 83.1% completion rate, six countries, and question-level response bases shown in the source export.
2. American Society of Health-System Pharmacists. ASHP Statement on Artificial Intelligence in Pharmacy. https://www.ashp.org/-/media/assets/policy-guidelines/docs/statements/artificial-intelligence-in-pharmacy.ashx
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External sources provide professional, safety, and regulatory context. They do not replace or modify the MDForLives survey findings.

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