

3 benefits of EHR optimization for pharmacy leaders

Electronic health records (EHRs) play a huge role in healthcare, but many people don't realize how important they are for pharmacy departments. When EHRs are properly optimized, they can support pharmacy leaders by improving patient safety, boosting efficiency, protecting downstream costs, and strengthening data management. Even though chief pharmacy officers (CPOs) do not participate in enterprise EHR strategy, the growing impact of these systems on pharmacy leaders requires CPOs to be more involved.

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Benefit 1: Enhanced patient safety

Well-integrated EHRs confer significant patient safety benefits.

Enhanced patient safety tools can catch problems before they happen. These tools can warn pharmacists about dangerous drug combinations, prevent medication preparation and administration errors, and identify and reduce misuse. For example, patient monitoring tools like pharmacist-operated dashboards can improve detection rates for abnormal laboratory values, harmful drug interactions, or medications that may not be appropriate for certain patients.¹

Vanderbilt University Hospital implemented a potentially inappropriate medications (PIMs) dashboard that flagged 179 patients and 485 patient-medication pairs over a three-week period. Clinicians followed about 78% of the pharmacists' recommendations, showing how helpful these alerts can be in preventing real medication problems.²

Barcode scanning reduces preparation, dispensing, and administration errors.

In one study, 5,932 instances of medication selection and dosing during 79 medication preparation procedures were observed. After a barcode system was added, errors that occurred during medication preparation dropped from 9.9% to 4.5%. The system also reduced the mean time needed to prepare medications for a 24-hour period from 30.2 minutes to 17.2 minutes.³ From 2018 to 2021, Helsinki University Hospital analyzed medication error trends following the phased implementation of an EHR as part of a new closed-loop medication management system. Since its implementation, they saw administration errors decrease by 35% and dispensing errors drop by 52%.⁴ This illustrates that integrating an EHR into medication workflows can make the entire medication process much safer and more efficient.

EHR flagging systems identify high-risk patients.

High-risk patient alerts, such as alerts when an opioid is prescribed, can prompt pharmacists or providers for additional review. This can help reduce 30-day readmission rates, and when combined with lowering the default number of opioids prescribed, alerts can also reduce how many opioids are dispensed overall. An example of this can be found from a clinical study of an AI-driven opioid use disorder (OUD) screener built into an EHR. This tool can analyze patient charts in real time, alert providers when a patient might be at risk, and recommend follow-up steps. The study showed that using this system reduced 30-day readmissions from 13.7% to 7.9%.⁵

Kaiser Permanente Mid-Atlantic States implemented alerts for prescribers and pharmacists to review opioid prescriptions. This resulted in a 27% change in opioid prescribing and a 41.3% change in opioid dispensing that helped lead to a reduction in the average day supply of initial opioid prescriptions.⁶ Another strategy that prioritizes patient safety is reducing the default number of opioids the EHR system recommends when a prescription is written. In a cluster randomized clinical trial across 32 primary care and four emergency department sites, and a total of 21,331 prescriptions, researchers found that reducing the uniform default dispense quantity of opioid analgesic prescriptions in EHRs reduced opioid prescribing without any significant increase in health service use or reorders.⁷

Benefit 2: Financial savings and improved efficiency

EHRs drive financial savings by guiding prescribers and dispensing decisions.

Formulary management and reconciliation can generate significant savings for organizations by streamlining the process through clinical decision support, automated inventory management, and automated dose rounding. Clinical decision support tools can help guide clinicians so they stay aligned with their institutional formulary through interchangeable therapeutic medications, alerts, and standardized dosing. Using therapeutic interchange protocols, pharmacists can automatically change an order to the preferred formulary alternative. Alerts can also notify prescribers about high-cost medications, duplicate therapy, shortages and alternatives, and dose warnings. Together, these tools can help manage high-cost medication usage while keeping patient safety a priority.⁸

In a 2019 study of such tools, prescribers working in ambulatory practices within one health system received EHR alerts whenever they ordered one of any of the four high-cost medication classes. These alerts offered cost transparency information about the medication being ordered and recommended an equally effective, lower cost, and safe alternative. Over just 12 weeks, the prescribing volume for these high-cost medications dropped by 32%, leading to an estimated cost savings of \$127,000 in annual health system spending across the four medications.⁹

Automated tools simplify inventory management.

EHR-enabled inventory automation helps reduce waste, improve cost control, and free up pharmacy staff capacity. This includes monitoring what's in stock in real-time, automatic order placement, as well as communication with vendors for information on purchase orders and shipments.¹⁰ An EHR can also check expiration dates and medication stock levels for automated dispensing system (ADS) cabinets or satellite pharmacies and decide which packages will dispense from which locations.

\$127K

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Having real-time inventory information is valuable for reducing waste, preventing shortages, tracking supply and demand, tracking inventory turnover, understanding expenses, and freeing up staff to focus on other duties. Automated ordering can also help pharmacists comply with vendor contracting and consolidate deliveries to reduce transportation costs. Additionally, showing cost-information at order entry can help make clinicians more cost-conscious when prescribing.

OSF Healthcare reduced operating costs and staff workload by implementing Epic's Willow Inventory application, which integrates inventory management across multiple pharmacies, and provides real-time data, and employs automation in ordering medications. In just six months, the system helped reduce on-hand medication volume by \$2.1 million, automated most pharmaceutical distribution, and improved the accuracy of financial accounting. Today, more than 80% of pharmaceutical orders from OSF clinics are automated, increasing order accuracy and improving contract compliance with vendors.¹¹

Automated dose rounding minimizes drug waste without compromising care.

Automated dose rounding tools safely round a medication dose down when the calculated dose is slightly more than a standard vial so a second vial doesn't need to be dispensed. This reduces waste, saves time, and lowers costs while still delivering effective treatment.¹² Because this strategy is built directly into the EHR, it fits easily into everyday workflows, supports consistent use, and allows organizations to track how often the tool is used and the impact it makes. Mayo Clinic is an example of a healthcare organization that implemented automated dose rounding for biologic and chemotherapy agents. As a result, they were able to reduce waste, improve efficiency, and achieve more than \$7.2 million in cost savings over just six months. The total cost savings over six months was \$7,284,796.¹³

Benefit 3: Improved data management

EHR use unlocks data-driven pharmacy insights.

EHR data tools give pharmacy leaders visibility into medication utilization, supply risk, cost trends, and quality performance. These insights can help organizations find areas for improvement or adjustment.

The EHR captures data spanning medication use and inventory, workflows, safety, quality, costs, and patient populations. When data is organized effectively, through well designed reports, dashboards, and data exploration tools (e.g., Epic Reports, SlicerDicer models, dashboards that track clinical, quality, medication shortages, orders, dispensing, and inventory levels).

Some key medication-cost indicators organizations often track include how quickly medications move through inventory, vendor contract coverage and compliance percentage, intravenous to oral dosage ratio, volume-adjusted medication costs (e.g., cost per adjusted patient day and discharge), and how much medications cost per patient day or hospital stay.

Challenges and considerations to overcome

EHR value depends on thoughtful implementation.

While EHRs offer powerful benefits, they also come with challenges pharmacy leaders will need to plan for to fully realize the value of their EHR investment.

One common challenge is **technological difficulty**. When an EHR unexpectedly does down, it can frustrate both clinicians and patients, temporarily disable patient safety guardrails, disrupt clinical workflows, and cause delays in care. Even after the systems are back online, there is still a recovery period where staff will need to enter data into the system that they couldn't during the downtime.¹⁴ The best way to reduce the impact of these outages is for organizations to create a comprehensive downtime plan and communicate effectively. It's also important to properly customize and optimize the EHR. Poor configuration can create safety risks instead of preventing them, which is why close coordination between clinical teams and IT staff is so important. According to a study by JAMA, EHR systems fail to detect more than 30% of medication errors.¹⁵ This highlights the need for thoughtful design and prepared planning.

Another challenge is **workflow adoption**. When staff are not well trained, EHRs can feel difficult to use, and medication information may be inaccurate. To keep patient care moving, staff may create work-arounds or shortcuts outside the system. These workarounds can lead to patient safety issues and add stress for pharmacy staff, leading to burnout.¹⁶ Implementing strong training programs and considering clinician input during EHR design can help alleviate workflow adoption issues and improve adherence.

Making sure to get all the potential benefits of EHRs is one of the best investments a pharmacy executive can make now and for the future. Choosing the right EHR for your health system and team combined with effective optimization will help maximize your EHR's value and give you the benefits of effective safety tools, financial savings, and improved data management while minimizing the risks.

Need help with your EHR implementation?

Optum consulting has the expertise to optimize your existing EHR or realize the anticipated benefits of a new EHR implementation by mitigating the complexities and costs of the investment. Let our team streamline the process for you.

Get in touch with us at advisory.com/optum-support.

Endnotes

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