

CASE STUDY

HOW MEDICATION HISTORY HELPS PARKLAND HEALTH & HOSPITAL SYSTEM AVOID READMISSIONS AND PINPOINT NONADHERENCE

Overview

Organization: Parkland Health & Hospital System, one of the largest public hospital systems in the U.S.

Location: Dallas, Texas

Size: More than 1 million patients served annually at dozens of locations, including an acute-care hospital licensed for 882 beds with a Level I trauma center and 20 community-based clinics

Challenge: Gain full visibility into patients' medication activity upon admission and in population health programs

Solution: Medication History

Impact

Medication history data is used in Parkland programs that have helped **streamline medication reconciliation, avoid adverse drug events and reduce 30-day readmissions by 27% for high-risk patients.**

Medication History for Populations supplies adherence data that supports both an at-aglance adherence score and deeper analysis, helping population health teams **identify patients in need of outreach.** One program using this data helped **cut the need for 90-day follow-up calls by approximately 20%.**

CHALLENGE: GET A CLEAR PICTURE OF PATIENTS' MEDICATION USE, FROM ADMISSION TO DISCHARGE AND BEYOND

As one of the nation's largest and busiest public hospital systems, Parkland Health & Hospital System serves a patient population with diverse needs and a broad geographic footprint. It includes a state-of-theart acute care hospital with a Level 1 trauma center, and it's a recognized innovator in areas such as informatics and population health.

Delivering excellent care and building sophisticated population health programs both require a panoramic view of patients' health and history. And tracking medication activity in particular can be challenging with Parkland's highly mobile patient population: Patients "may go to different pharmacies based on what they can afford with coupons, or where they're staying at the moment," said Esther Thomas, Pharm.D., a Parkland pharmacist whose responsibilities include medication reconciliation.

When a patient is admitted for acute care, missing or inaccurate information on the medications they're taking can be dangerous—and difficult to spot. Patients may not be able to report or recall the details of all the medications they're taking, which may have been prescribed outside the health system. Prescriptions first filled at one of the health system's pharmacies may be refilled at a different pharmacy even after they're no longer clinically needed or have dropped off the prescriber's radar. Unforeseen drug interactions, duplicate prescriptions and gaps in therapy can all result, complicating treatment or potentially causing adverse drug events.

While the stakes may be lower elsewhere, incomplete medication history data can cause problems throughout a health system. Without reliable data on medication adherence, it's difficult for population health managers to identify and prioritize patients in need of outreach. And incomplete records can artificially depress adherence scores—a major problem when value-based reimbursement depends on those scores.

All of these factors made it essential for Parkland to seek out a source for medication history data that would reach beyond its own records and beyond claims data for an accurate and timely view of the prescriptions patients had actually filled. It would have to integrate with their electronic workflows, and yet offer Parkland enough control to support multiple levels of population health analysis.



SOLUTION: A SOURCE FOR COMPREHENSIVE MEDICATION HISTORY DATA.

After following a request for proposal process, Parkland selected Surescripts as a vendor to send medication history data to clinical and population health workflows.

Digging a Little Deeper

When patients are admitted for acute care, nurses and pharmacists can use medication history data during reconciliation to get a comprehensive and current list of the patient's medications without depending solely on in-house records, claims data or the patient's memory. Clinicians receive aggregated, dispensed medication history data from pharmacy benefit managers (PBMs) and pharmacies in their electronic health record (EHR) workflows.

This is helpful to nurses during intake, but also to pharmacists like Esther Thomas, who handle more complex medication reconciliations. "Sometimes the providers want us to double-check the doses of highrisk meds or psych medications ... or if the patient is unable to say what they are taking, like the dose or how often they take it," she said.

Medication history data also comes into play when patients are flagged by Parkland's PARADE (Patients at High Risk for Adverse Drug Events) program, which uses a predictive model to identify patients who can benefit from inpatient pharmacist intervention at the point of hospitalization.^{1,2} For those patients, pharmacists compile in-depth medication histories following Parkland's best practices, supported by comprehensive medication history data.

A Snapshot View of Adherence

More recently, Parkland also implemented medication history data for populations. With data files delivered electronically on a regular cadence, the team has a thorough and flexible source of medication history information that they use to enhance their population health programs in several ways.

One use is P-SAM, or Parkland Score for Adherence to Medications, a custom metric Parkland created to display adherence at a glance for patients with chronic diseases. It arose from a quality improvement initiative to build a point-of-care tool for assessing patients' medication adherence, replacing what the team described in *Clinical Diabetes* as "a cumbersome process involving several steps."³ They combined fill and claims history for select drug classes from internal sources with Surescripts medication history data into a unified metric within the care team's workflow.

Medication history data for populations also flows into Parkland's "digital boardroom" dashboard, where population health teams can filter patient data by criteria such as demographics, insurance coverage or pharmaceutical class. With pharmacy fill data giving a more complete picture of adherence, the team can more quickly and accurately identify patients who truly need intervention, spending less time reaching out to patients who turn out to be adherent.

RESULTS: CONFIDENT CARE DECISIONS, POSITIVE PATIENT OUTCOMES & TIME SAVINGS ACROSS THE SYSTEM

Confident & Comprehensive Medication Reconciliations

With the combination of Parkland's best practices and comprehensive medication history data, **clinicians are able to perform medication reconciliation based on a full picture of patients' medication use.**

Access to pharmacy fill data is especially important for a large public hospital, noted Esther Thomas: "We have so many different types of patients that come to Parkland—so they may not [have insurance], but they may still be filling [prescriptions ...] And that helps the providers a lot, to see what they've been on or where they've been last and where they picked up medications."

With this data in hand, prescribers can chart a path toward positive clinical outcomes that embarks from a thorough understanding of the patient's medication history.

Lowering 30-Day Readmission Rates

Since it launched three years ago, PARADE, the Parkland program that flags patients at risk of adverse drug events for pharmacist intervention, has shown strong results. In a 2019 analysis, Parkland researchers found that **the 30-day readmission rate dropped 27% for high-risk patients who received a consult from pharmacists in the program.**⁴ Those pharmacists were able to look at medication history to make sure overlooked medications wouldn't lead to adverse events.

Building on Point-of-Care Adherence Insights

Powered by extensive medication history information, Parkland's P-SAM system **now displays an adherence score for at least one drug class for more than 65,000 patients.** The team is starting to see data on the relationship between high adherence scores and better outcomes: In a preliminary analysis, a higher adherence score for liguratide appeared to correlate with lower A1C levels for diabetes patients.⁵

With this system in place, the team is continuing to optimize its use. Next steps include a new awareness campaign to help providers put the adherence data into context: "For example, patients with a high P-SAM score and poor disease control might need an adjustment or revision in their treatment prescription, whereas those with poor adherence might benefit from a different approach," they noted in *Clinical Diabetes*. They are also planning to use P-SAM as a trigger to survey patients on adherence barriers they are facing and refer them to programs that can help.⁶

Prioritizing Population Health Interventions with Fewer Phone Calls

On the population health front, medication history data for populations is helping the team quickly identify patients in need of intervention. If you're trying to prioritize patients for adherence interventions, Kristin Alvarez explained, "I just want to call the ones who have really poor adherence to find out what their barriers are—especially if I feel confident that, as their adherence decreases, their disease control also decreases."

Parkland's adherence score has eliminated countless phone calls for clinicians who need to be sure patients are taking their prescriptions. As one example, Alvarez cited a program where nurses were initially scheduled to call patients to check adherence seven, 30 and 90 days after they'd been prescribed dual antiplatelet therapy.

"Of course, when you have someone having to make all these phone calls, you have wrong numbers, you're trying to call three times until someone answers," Alvarez said. They realized that at the three-month mark, nurses could check the patient's adherence score. If it showed the patient was filling their prescriptions as intended, they could skip that phone call and move on to patients whose adherence was in question. **This cut out approximately 20% of the 90-day follow-up calls.**

"Sometimes it can take hours to try to get records from different places. Not only are they busy in the ED, but so are pharmacists and pharmacy technicians in retail pharmacy locations. If you're calling and trying to get information from them, they have to also pull away from their customers and they're short-staffed as well. And so having a network that has so much information in one place is really important."

-Kristin Alvarez, Director, Center for Innovation and Value at Parkland

LESSONS FROM PARKLAND HEALTH & HOSPITAL SYSTEM

A great deal of careful planning and collective experience went into Parkland's approach to increasing their team's access to medication history data. Health systems considering similar projects should keep the following insights in mind:

Make sure your medication history source extends beyond claims data.

While useful, claims data alone can't provide a full medication history for every patient. For instance, it misses patients who pay for their prescriptions in cash. It's a serious blind spot that incorporating pharmacy fill data can help address.

"Some quality metrics that qualify reimbursements or penalties are tied to adherence scores that are based on only claims data," Kristin Alvarez pointed out. "I think what really helped us at the population level and at the organizational level is realizing that you really need *everything*—not just one piece of it—to judge quality improvement projects related to medication adherence at the population level."

Find a solution with the flexibility to support multiple use cases.

"There are many different ways to calculate and look at adherence," Alvarez noted. While Parkland's Epic EHR came with basic adherence-tracking functionality, the team realized early on that they'd need to delve deeper to support the kinds of analysis their population health team had in mind. They chose a solution with that in mind.

Take workflow integration seriously.

The Parkland team made sure to select a medication history solution that would integrate with their EHR workflows.

They were also aided by strong in-house technical capabilities, especially when it came time to incorporate medication history for data for populations into the workflows and custom-built dashboards the team uses. "You need to have a very strong informatics team and data analytics team for the integration piece," Alvarez recommended. Without dedicated internal resources, testing and troubleshooting can become roadblocks, rather than routine parts of the implementation process.

Use medication history data as "a springboard for conversation."

Data quality is important. But so is the quality of the conversations it inspires.

Alvarez has one key piece of advice for clinicians using medication adherence data in any form: "It's a springboard for conversation with your patients. It changes the conversation from, 'Oh, I see you haven't been filling this medication,' or, 'You're not taking this' to prompting the questions 'Are you having any trouble getting your meds? How can we help you?'"

No amount of data can replace a person-to-person connection with a patient. Clinicians fare best when they view medication history data as a tool for discovery, helping guide the conversation to areas of potential concern so they can work toward a solution with the patient.

As Alvarez put it, "It is meant to cut down the amount of time you spend digging—so you can get straight to the point."

"You really need everything—not just one piece of it—to judge quality improvement projects related to medication adherence at the population level."

-Kristin Alvarez, Director, Center for Innovation and Value at Parkland



ABOUT THE SOLUTIONS

Medication History gives a more complete and accurate electronic picture of patients' medication history for better informed, more efficient and safer care decisions.

- Aggregates and delivers accurate dispensed medication history data from PBMs and pharmacies directly into the EHR workflow
- Provides real-time medication history information through a single connection, including deduplicated claim and fill records
- Presents the past 12 months of a patient's prescription history to help determine compliance, improve adherence and support decisions about new drug therapies

Medication History for Populations lets health systems, hospitals and accountable care organizations proactively access medication history via their EHR or analytics platform to help manage cost-effective care for patient populations.

- Retrieves up-to-date data for specific populations to help identify characteristics that lead to care gaps and triage patients into low-, medium- and high-risk groups
- Uses prescription history data from nearly all major pharmacies and PBMs to track all medications patients are taking—even cash pay—and better pinpoint patients who may be at risk
- Provides consistently formatted medication history data from multiple sources that is refreshed nightly

References

- PCCI, "PCCI's Predictive Model Helps Prevent Adverse Drug Events," October 7, 2019, https://pccinnovation.org/pccis-predictive-model-helps-prevent-adversedrug-events/.
- 2. Hanh L. Nguyen et al., "Real-Time Risk Tool for Pharmacy Interventions," Hospital Pharmacy, November 25, 2020, https://doi.org/10.1177/0018578720973884.
- Kristin Alvarez et al., "Design and Implementation of an Electronic Tool to Measure Medication Adherence at the Point of Care," Clinical Diabetes 38, no. 4 (October 2020), https://doi.org/10.2337/cd20-0011.
- 4. Hanh L. Nguyen et al., "Real-Time Risk Tool for Pharmacy Interventions."
- 5. Kristin Alvarez et al., "Design and Implementation of an Electronic Tool to Measure Medication Adherence at the Point of Care."
- 6. Kristin Alvarez et al., "Design and Implementation of an Electronic Tool to Measure Medication Adherence at the Point of Care."





Our purpose is to serve the nation with the single most trusted and capable health information network, built to increase patient safety, lower costs and ensure quality care. Since 2001, Surescripts has led the movement to turn data into actionable intelligence and convened the Surescripts Network Alliance™ to enhance prescribing, inform care decisions and advance the healthcare industry.